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THE PROBLEM OF PSYCHIATRY IN THE FUNCTIONAL PSYCHOSES.[1]

BY EDWARD COWLES, M. D.,
Boston, Mass.

In the study of Mental Diseases it is important to find their true place in relation to other pathological conditions. Our conceptions of the nature of mental symptoms should be framed in harmony with the true principles of general pathology. These are essential requisites for the progress of psychiatry. I shall try to present some considerations to this end in discussing my subject: The problem of psychiatry in the functional psychoses.

It is essential here, as in all such inquiries, to have a clear understanding of the terms of the problem; words and phrases, and the formulæ of principles, should have correct and definite meanings. Our ideas may be embodied at first in words which seem to express exactly all that we know; but as our conceptions tend to outgrow their verbal expressions these may gain the larger import and lose the narrowness of their derivations; or being used in an earlier and more or less restricted sense they hamper thinking in the shackles of authoritative phrases that obstruct reasoning, and single words may perpetuate error and lead to confusion of interpretation and discussion. The dicta of general principles accepted as fundamental may sometimes harbor hidden fallacies and prove to be untrue after having long retarded progress. It is

[1] To fill the vacancy in the programme created by the absence of one of the principal speakers, this address was presented, by Dr. Edward Cowles, Chairman of the Section of Psychiatry of the International Congress of Arts and Sciences, St. Louis, September, 1904, and subsequently revised by him from the outline then given.—Editors AMERICAN JOURNAL OF INSANITY.

a necessary part of this discussion to examine first some definitions and the formulæ of certain accepted principles and the doctrines drawn from them.

The terms in which the present subject is expressed contain no ambiguity as to its meaning to lay down the proposition that the problem of psychiatry is to be found in the functional psychoses, meaning here mental diseases. But something needs to be said defining the true province of psychiatry; and the words "functional psychoses" lead at once into the maze of difficulty surrounding the relations of functional and organic diseases. In the definition of disease, as "any morbid deviation from normal health," "the important distinction is drawn between organic or structural diseases in which there is a lesion or pathological condition of some part of the body, and functional diseases in which there is an irregular action of a part but without organic abnormality." But keeping to this distinction it is a remarkable fact that the word "psychosis" is used in opposing senses in mental physiology and mental pathology. The psychologists, having regard to the normal processes use "psychosis" as "equivalent to the mental or psychical element in a psycho-physical process, just as neurosis refers to that aspect of the process which belongs to the nervous system." On the other hand, in psychiatry the word "psychosis" is used pathologically and "designates an abnormal mental condition"; it is described as a typical form of insanity ("disease-form") which can be scientifically differentiated and correlated with a specific "disease-process," and the usage implies a structural change. In neurology "neurosis" is also changed from its normal functional sense in psychology and used to designate a "morbid or diseased condition." "Functional neurosis is a morbid affection of the nervous system known only by its symptoms, and without anatomical basis. It is doubtless true that an anatomical lesion of some kind does in each case exist, and the classification of diseases as organic and functional is but a concession to our ignorance."[1] These instances afford examples of looseness of usage in two most closely interdependent lines of research showing the disharmony between them that tends to confusion of understanding. It is allowable to speak of the neuroses,

[1] Baldwin, Dict. of Philos. and Psychol.

and the meaning is plain as referring quite exclusively to functional disorders; but to constitute a true psychosis, in the pathological sense, it must have a definitely differentiated symptom-complex that can be designated as a "disease-form"; this is commonly spoken of as a clinical "entity," and it implies a correlated "disease-process." We may speak of acute and chronic psychoses, or of organic psychoses, to distinguish the insanity due to cerebral disease. But the psychoses proper being conceived as real disease-entities, when in psychiatry we wish to speak of the group of minor and often temporary variations of the mental functions, parallel or corresponding to the neuroses in neurology, the word functional must be added and the term functional psychoses used as in the subject of this discussion.

The Position of Psychiatry as Shown by Current Teachings.

The point of view of this inquiry is that of general medicine for one who, without predilection and looking for light on all sides, approaches the field of psychiatry and tries to understand its problems. In seeking the true place of mental diseases in relation to other pathological conditions, and in order to harmonize his conceptions with the true principles of general pathology, it is found at the outset that the functional psychoses are to be regarded as being in contrast with the psychoses proper associated with assumed structural changes and "disease-processes," or with definite organic diseases of the brain. Here as in general medicine this distinction of functional and organic disease appears to be an expression of the dominance of morphological conceptions in medical knowledge. Diseases due to obvious structural changes can be understood and subjected to treatment as in surgery; but the bodily diseases called functional for which there is no pathological anatomy constitute a very large group.

Although there is a greater reason for this being true also of functional mental diseases, the inquirer finds in the psychiatry of the time small interest in them. It is a very old idea that the different forms of insanity may be explained by the study of the brain and its degenerations. The history of modern psychiatry shows that it has given great emphasis to these morphological

conceptions by its precise methods and achievements in histological investigations of the brain. In recent years the German schools have been the centres of interest. The environment of their origin had pre-eminently the morphological stamp. Thus the effort to determine definite "disease-forms" and "disease-processes" has been a distinctive characteristic of modern teachings in the search for anatomical correlations and explanations. The application of the scientific method in clinical study has been most fruitful of admirable results. The "disease-process" assumption has been stimulating and helpful as a spur to morphological investigation, which all agree should be carried to the utmost. But with the inheritance of such conceptions the modern movement has been characterized also by the continuance of the quest for mature forms and types and for their systematic classification. The pathological principles being embodied in the designations "disease-form" and "entity," and "disease-process," the consistent use of these has implied that every such pathological process should have its cause, course, and outcome. A psychosis thus constituted is held to present the attributes of scientific truth although some actual morphological characters that furnish complete and proper proof may yet be wanting.

While these teachings have been taking form in the last twenty years, the influence of modern psychology has been felt and is becoming apparent, especially in the last half decade. Although psychological studies of mental functions are viewed with much of the same distrust as before, the experimental method, in its clinical use in psychiatry, excites interest by the objective character of its results; they have the value of observed and measurable facts of function which may contain the promise of being ultimately traceable to facts of structure.

The present results of this movement are exceedingly interesting and promising, although it is true that there is much diversity in the products of these methods of study. With the increasing number of observers the more variations there appear to be in the interpretation of the phenomena. This is shown in the differentiation of named "disease-forms," and by a comparative study of some new classifications.[8] This, however, is a hopeful stage of

[8] Meyer, A., A few Trends in Modern Psychiatry, The Psychological Bulletin, Vol. I, 1904.

progress. In the extreme view it has been held to be unreasonable that any conclusions can be drawn from the psychical activity of a diseased brain; psychological explanation is of no value, it is said, without an objective measure in definite "disease-processes" in the cortex. According to other views, in which the conception of a "disease-process" is still fundamental, conditions that do not lead to deterioration are conceived to be of a "special type," and a "biological entity" is conjectured as representing "a special kind of disease-process or disease-principle." Again under broader conceptions it is held that more than one point of view is needed to do justice to psychiatry, and a special psychopathology is founded upon normal psychology. But this meets with criticism as giving undue prominence to psychological distinctions inconsistent with a true medical conception of disease.

The influence of the new German schools has been strongly felt in other countries. But the inquirer, extending his survey in these directions, finds that the cotemporary interest in the physiological aspects of psychiatrical problems has not waned, though they are somewhat overshadowed. In Italy, for example, Ferrari has studied the pathology of the emotions, as has Féré in France, where Ribot has done the most to elucidate the relation of mental experience to the personality, and Janet has made his remarkable contributions to future psychiatry by the analysis of mental instability in the border land of insanity. The British alienists have conservatively given attention to functional as well as to anatomical conceptions, notably Mercier. Hughlings Jackson has magnified his distinction as a neurologist by his recognition of the importance of the physiological factors in nervous and mental disease; his method of reasoning from functional characteristics to interpret structure, instead of inferring function through proofs in structure, is now attracting renewed interest.

These English views have long held a like formative place in America where they have not lost, but have sustained their force during the decade since the introduction of German teachings. Attention was first attracted especially to Kraepelin and the methods at the Heidelberg clinic with a consequent intensification of interest in morphological conceptions qualified by clinical observation. The painstaking studies of Meyer and Hoch approached the subject from the neurological side loyal to the scien-

tific method; through their work the conceptions of Kraepelin were submitted to the tests of practical co-operative study and experience with results anticipating his own later simplifications of "disease-forms." There was also, not only the establishment of collections of admirable clinical records, valuable for further study and analysis in future, at the McLean Hospital and the Worcester Insane Hospital where this special work began, but the extension of this clinical method to many other hospitals. Later in the movement came the different interpretations of psychiatrical problems by Wernicke and Ziehen,—the latter with an especially hopeful attitude toward psychological explanations. There has appeared a tendency to change in the views of these German teachers, of whom it is said they "have emancipated psychiatry from the peculiar position of an adjunct to neurology,"—a position for which the claim has long been made and is not yet yielded.

In the outcome of the decade in America the intensity of the new teachings is being qualified by independent studies of the problems involved, and the continuity of the current of earlier views here has been maintained. This former trend has persisted not only in psychiatry but it has appeared in neurology which was formed in, and has held to, pronounced morphological conceptions. Dana, Putnam, and Prince, for example, have taken special interest in the physiological and abnormal aspects of mental phenomena. Herter has made the most noteworthy of contributions to the future understanding of mental as well as nervous diseases, by studies of the chemistry of pathological physiology and the disorders of nutrition and metabolism in seeking the fundamental principles of practical therapy. Traceable here, as in general medicine, is the influence of the immensely important work of Chittenden; while this has little or no place in German teachings of neurology and psychiatry, the chemical side of the composition and activity of nervous tissues is receiving attention in England, in recent years, through the special studies of Mott and Halliburton which, however, relate distinctly to changes in structural disease. In America, the trend toward functional conceptions of mental pathology became embodied, with a special motive inspiration from general medicine, in the work of the McLean Hospital more than two decades ago. Early in this period, under the added influence of the new teachings of physiological chemistry, the

purpose was developed which has led, in the last half decade, to Folin's chemical investigations of disordered metabolism in immediate connection with the clinical study of the physical conditions and treatment of the insane; the parallel development, on both physical and mental lines, of the original purpose there is also finding its prime expression in the recent establishment of another clinical laboratory in which Franz is applying the physiological and experimental methods of the trained physiologist and psychologist. This particular development of the tendency to studies of the physiological aspects of psychiatry has been characterized throughout by its essential purpose of seeking guides for treatment of the physical conditions associated with functional mental disorders.

It appears that the turning away from the barrenness of histological provings is becoming general; the improvements of the clinical method and psychological experiment are inevitably drawing attention to the closer observation of the individual patient, and to the better study of the minor causes of his mental variations; this means a trend toward physiology. It is a safe prediction that pathological physiology is to be called to render such aid to psychiatry as it is giving in general medicine; and that the extraordinary advances in pathological chemistry will become available in mental diseases.

Such are some of the considerations suggested by a survey of the present aspects of the field of psychiatry. The changing attitude of psychiatry toward psychology is of great significance. These circumstances guide the inquiry into the conditions and causes of the present position of psychiatry.

The Relation of Psychiatry to General Medicine.

Psychiatry belongs to general medicine.[4] This view has been presented in the annual reports of the McLean Hospital since 1882;[5] my first statement of it, in the report of that year, was to

[4] Cowles, E., Advanced Professional Work in Hospitals for the Insane, Am. Jour. of Insanity, Vol. LX, 1898; The Mechanism of Insanity, ibid., Vols. XLVI, XLVII, XLVIII, 1889-91; also The Shattuck Lecture, Neurasthenia and its Mental Symptoms, 1891, Bost. Med. and Surg. Jour.; Mental Symptoms of Fatigue, Trans. N. Y. State Med. Assoc., 1893.

[5] Cf. An. Rep. 1882, 1889, et seq.

the effect that the physiological basis of the treatment of the insane lies in the fact that the normal functions of the cerebral organ may be only temporarily disturbed or only partially impaired, whether by transient disorder or pathological change; and the consequent fact that, in most cases, some degree of normal function remains. This principle was stated to be in accordance with the most important gain of modern pathology, the modern conception that "Disease is, for the most part, normal function acting under abnormal conditions."[6]

Mental diseases, in their study and treatment, include more than is contained within one branch or department of general medicine by having to deal with the mental effects of pathological conditions of the whole body; psychiatry is not limited especially to the nervous system with its central organ which has functions of a wholly different and higher nature than those of any other organ. There are functions of the brain other than the common ones of receiving impressions and reacting uniformly upon them like a reflex mechanism; by its mental function it receives impressions, retains and recalls its conscious experiences, selects from and rearranges them, and in new and orderly forms initiates and controls the processes of motor expression. The psychiatrist newly attempting the precise study of mental symptoms is confronted, at the outset, with the oldest of problems, the relation of mind and body. If he turns to physiology and neurology for light upon the physiological terms, mental and physical, of his problems he meets everywhere such statements as that of Wundt: "in matters psychological the naturalist can only affirm that psychological phenomena run parallel with physiological facts, but that on account of their different natures he has no prospect of ever bridging the gulf between the two." Edinger[7] writes, "We have no idea how it happens that a part of the work done by the nervous system leads to consciousness." Lloyd Morgan[8] offers the following practical conclusion: "One of the difficulties is that of conceiving how mind can act on matter, or matter on

[6] Dr. Gairdner, Presidential Address, Brit. Med. Psych. Assoc., Jour. Ment. Science, 1882.

[7] Edinger, L., Brain Anatomy and Psychology, The Monist, Vol. XI, 1901.

[8] Relation of Mind to Body, International Quarterly, Vol. VI, 1902.

mind. * * * * Let us at once confess our ignorance of the nature of the intimate relation of the one to the other. But certainly in many cases the observed facts show that our ignorance notwithstanding, they *are* somehow related. * * * * And since we cannot know the nature of the relationship, let us be content to seek for some of its conditions."

The psychiatrist is a physician who should take his point of view in a field even broader than that of general medicine in its largest sense, and not within the narrow limits of any specialism which may seem to include the sphere of mental activities. He has to deal with the physical effects upon the individual of all the influences that act upon him in his environment, and that enter into him from without, or are engendered within, which make for the maintenance or impairment of his vital processes. Such physical influences contributing to conscious experience have their mental effects; the psychiatrist must not only seek to understand the physical changes and effects but he must deal with the patient's consciousness of them; and the more subtle influences that affect the subconscious mental life. The physician must study not alone the influence, upon the mind, of the body in health and disease, but also the external physical, social, and moral conditions of the environment unfavorable to mental health and growth. It is in association with this broader view of general medicine that, with respect to mental disorder, he must seek explanation on the physical side of the organism, and turn to expert research for such aid as can be given him by the contributing sciences.

The field of the medical sciences is as wide as that of biology, which comprehends all the interdependent phenomena of mental and physical life; the abnormal must be referred to the normal. The first recourse of the psychiatrist is to physiology whose domain is the study of the forces or functions of living matter. There are no symptoms until there are deviations from normal function; without functional activity disease is impossible.[8] On the side of normal life, living substance necessarily presents the

[8] Cf. Orth, J., Relation of Pathology to Other Sciences, Am. Medicine, Vol. IX, 1905. "When there is no functional activity and thus no deviation from normal function there can be no disease." Published while this paper was in manuscript.

conditions of structure, form and function; these conditions are primary and disease is not necessary to the existence of living substance. Here the general physician finds himself involved in the contention between the sciences of physiology and pathology; the psychiatrist needs first a normal standard in his knowledge of general physiology, and all that he can learn of mental physiology and its relations to its mechanism, structure and form. Psychology lays open to intimate study the facts of the mental life; on the anatomical side we can know little, and that little explains nothing of the relations between mind and body. It is at this point that the physician must choose his point of view and form his conceptions of fundamental principles. If these are true they should fit all discovered facts, whether of function or structure, and will lead to advancement of his knowledge; if not true they lead to conflict and confusion, and obstruct progress. It is necessary to examine the mutual relations of the biological sciences to know their relative value to psychiatry.

The Position of Pathology and its Influence Upon Modern Psychiatry.

The science of pathology, with the justification of its brilliant achievements, holds itself to be fundamental to the medical sciences. Its elucidation of the phenomena of disease and its results puts it into inseparable relation with life. It claims that its conceptions comprehend all of biology, for on all sides it bears essential relations to the subsidiary biological sciences. Deviations from normal structure and composition of the body, and from the normal functions of its parts, are held to belong to pathology; in this view the study of structural variations in the evolutional and the developmental processes, from the normal in primordial and embryonal forms, may explain inherited and congenital disease, and, as a part of pathology, throw light upon morphology. Physics and chemistry, as they underlie both function and structure, contribute to the explanation of pathological change, and the disorders of function caused by disease; and pathological physiology and chemistry, whose importance is now receiving growing recognition, are to be regarded as subsidiary to pathology and dependent upon it. In the sphere of general pathology, dealing with function, it finds its duty to be "to cor-

relate symptoms with structural changes and trace the connection between them."

The science of pathology, presenting by its salient aspects such claims to the physician who seeks for light upon the problems of psychiatry, reveals a changing history. The leadership of the pathological-anatomical school in France passing over to Germany culminated in the "cellular pathology" of Virchow, this being founded upon the principle that the cell is the unit of structure and function and that all vital processes are to be referred to the activity of the cells of which the body is composed; they are the "factors of existence." This includes the phenomena of disease and all alterations of the organs and tissues, the principle being that whatever acts upon the cell from without produces a change, either chemical or physical, in the cell structure, and disease is constituted of such changes. These principles became the foundation of the "exact medicine" of the present day. Griesinger first established modern psychiatry upon the exact basis of scientific research and pathological principles, and through Meynert pathological-anatomical teachings were greatly advanced; following them it was in such an environment that the latest schools of psychiatry had their beginnings with an immediate inheritance of its morphological conceptions as the fundamental criteria of scientific truth. Such were the conditions of the inception of the current teachings, based upon a rigid morphology. The German schools of psychiatry became the centres of interest and influence, and their characteristics have already been noted. In the history of the time from Virchow, Griesinger, and Meynert, to the present there have been momentous advances in the other biological sciences as well as in pathology and psychiatry. The two latter lines of research are being strongly influenced by the concurrent changes. There are some very recent and significant signs of changing views in psychiatry which possibly betoken the freeing of itself from the too rigid dominance of structural pathology.

The Relation of Pathology to Other Biological Sciences, Especially to Physiology.

Physiology, when it declared itself an independent science by breaking away from medicine and establishing its place in the

great realm of biology, entered upon a broader field of study of the functional side of life with its complex phenomena in the functions of all living matter. To morphology, as an equally independent science, belongs the study of the structure and form of living matter; it covers the whole field of anatomy in the special forms of zoölogy and botany. But physiology and morphology, which are closely woven together, are both built upon the foundation of the inorganic elements of inanimate matter with its controlling laws of physics and chemistry that govern the forces of inanimate phenomena. All these forces of animate and inanimate nature are bound together; from a biological point of view we do not know living matter without both form and function.

On the part of the physician the inquiry at this point is as to the true relations of pathology to the other biological sciences in medicine. The scientific foundation of pathology, the development of its work in the other sciences which it necessarily involves, support its claim to an equal place in biology with the other natural sciences.

Prof. Orth, in an address at Kassel in 1903, described pathology as consisting of two branches, anatomy and physiology. Although the great Virchow remained a pure pathological anatomist he contemplated the beginning of pathological physiology as the culmination of his endeavors; "one of his favorite themes was the establishment of pathological physiology, a subject which, to his mind, was the foundation of scientific medicine, and therefore of medicine as a whole." Practical medicine, according to Virchow, is co-extensive with pathological physiology; this is founded on pathological anatomy, clinical observations, experimental researches; its problem is the determination and investigation of bodily processes under abnormal conditions, of illness and its symptoms. Virchow's experimental investigations to clear up morphological characteristics of disease go only to the beginning, and Prof. Orth urged that better attention should be given to physiological methods for the determination and interpretation of functional disorders in the unhealthy organ; yet pathological morphology must remain the unchangeable groundwork of all medical knowledge and thought; its most important function is its purpose for the upbuilding of pathological physiology.

for the understanding of the living processes and their disturbances in the sick body.

Bacteriology in its marvellous progress leads investigation directly into the field of pathological physiology, and finds explanations in the normal physical and chemical reactions that belong to the normal cell physiology. Pathology, taking bacteriology into its special province, is engaged in the study of problems relating to the nature of disease. General physiology has shown that the physico-chemical reactions in living substances are fundamental and essential factors in the production of vital phenomena; it finds, in its investigation of the component elements of cell-substance, that in physiological chemistry is its chief aid in the explanation of vital activity and its disorders. Herter[10] reviews our present knowledge of the chemical defences of the organism against disease; it serves to emphasize the varied chemical activities of the cells, and to render more intelligible the phenomena of diseases that result from modifications or failure of these cellular functions. He says: "Modern pathology has made us familiar with the conception that disease is generally the expression of a reaction on the part of the cell to injurious influences. The only rational conception of the ability of the human body to defend itself against disease by means of chemical agencies is that these defences ultimately reside in the cells themselves. Many of the phenomena of disease are caused by the modification of function that occurs during the action of the cell in resisting injurious influences." Ernst[11] has shown that, notwithstanding the great obscurity of the subject and the somewhat conflicting theories, the point is maintained that in all reactions the cell activity intervenes at some stage of the production of immunity; and that most probably the reactions that occur are closely related to these that go on under the ordinary conditions of tissue metabolism. These considerations are consistent with the fundamental doctrine of cell physiology and pathology.

It appears from a brief survey of the history of pathology that when at first it was a part of anatomy, it was then pre-eminently morphological, and that this characteristic motive still prevails to a large degree. After it became independent, pathology con-

[10] Herter, C. A., Chemical Pathology, 1902.
[11] Ernst, H. C., Modern Theories of Bacterial Immunity, 1903.

cerned itself especially with deviations from the normal anatomical standard. It developed new relations with the other biological sciences as they attained existence, and like morphological problems arose in connection with them. There was mutual receiving and giving of aid, but anatomy was the parent science and the study of the concrete facts of structure being easier than ever-changing function, morphological conceptions have always kept in advance and pathology has held them to be essential in giving finality to its explanation and proofs. But, with the slowing of progress, as normal and pathological histology has approached the frontiers of present attainable knowledge, much of speculative theory has arisen in the endeavor to prove apparent and conjectural realities of structure by reference to the facts of physiological activity. The history of pathology reveals evidence in support of the conclusion that, from the beginning, the science of pathology has needed first the data of normal form and function in order to study their deviations; also pathology has been steadily tending to the finding of its ultimate dependence upon physiology. Aside from the results called disease from actual traumatism of cell bodies caused by extrinsic agencies there must be many transient conditions of intracellular rearrangements or molecular disorder, beginning with functional and defensive reactions, long before there can be any ascertainable structural findings. Such molecular changes, beyond the ken of the microscopist, might be assumed to be structural in fact; but the ultimate problem of the search for explaining principles thus tends to become a physico-chemical one. The facts of cell functions should hold an important place in the study of the varying agencies and influences of cell stimulation in the production of symptoms. The relation to physiology of the morphological side of pathology is especially instructive.

The Relation of Morphology Normal and Pathological to Physiology.

Morphology presents considerations of the highest importance which require special notice in this examination of the mutual relations of the biological sciences. It is granted that pathology, on the morphological side, is inconceivable without normal anatomy as its basis. Pathological anatomy, being dependent on

normal anatomy, belongs to the science of morphology. This science, with its great subdivision of embryology, has attained splendid achievements; in the course of its advancement in many specialized lines of investigation in plant and animal life, it has enjoyed the advantage of being able to study the problems of evolution and development in many quickly succeeding generations of vital forms. The scope of its observations has extended farther than from the point of view of medicine, and is reaching conclusions that may yet illuminate some of the dark places of psychiatry. The history of morphology has a special significance in its development cotemporary with other biological sciences; the changes in its course suggest a law of progress in scientific research that has operated in other fields. After the emergence of morphology, and of physiology, from the keeping of anatomy, the two new sciences entered upon equal domains in the realm of biology. Morphology asserted the independence of the science of form and structure from that of function; the doctrine was that form persists and function varies. It was characterized by the conception of a fixity of types, a rigid adherence to the study of mature forms which it labored to arrange in a perfected and systematic classification. With the breaking away from these rigid conceptions, during the last fifty years, the course of progress was in the study of the problems of evolution; leading through the investigations concerning the origin of species, it has come to the recognition of the supreme importance of the problems involved in the development of the individual, and of the biological laws that govern it; and the wide range of variations that may be produced in members of a given species. So in medicine, instead of clinical types, the differentiations of disease are becoming genetic and developmental in character.

In the morphology of plant and animal life it is agreed on both sides that they are subject to the same laws; in both plants and animals there are identical processes which are consistent with the significance of the cell-doctrine as being fundamental to morphology. In the close relation of form and function the modern conception is that the structural characters of which an individual organism is made up correspond to its functional characters; form characteristics can not be understood without considering the function characteristics. Physiological characteristics are trans-

missible in the same way as the morphological. The study of physiological cytology and embryology is revealing the mechanism of the transmission of qualities; with the aid of the experimental methods in the production of variations in both form and function, there is great progress in the understanding of the laws of descent and inheritance. The close relation of physiological and morphological characteristics proves that the problems of form and structure are also physiological problems. Physiological processes are influenced and often controlled by the conditions of the environment both internal and external; and it is shown that mental as well as physiological characteristics are inherited under the same laws. These brief references to the data of morphology serve here to indicate the trend of progress in this science; it points to the conclusion that influences which stimulate functional activity play an essential part in determining the processes of development and the resulting structural forms. The demonstrations of the dominance of the sensory over the motor side of the nervous mechanism is consistent with the fact that all movements are primarily a response to sensory impressions and are performed under their guidance. It follows from the teachings of Hughlings Jackson that cell-groups are thus formed by a process of education. All motor phenomena being responsive reactions to stimuli applied to the neuro-muscular mechanisms, the laws of use and habit influence functional activity and growth. The unity of all these sciences is also shown. Physiology and morphology have to do with interdependent manifestations of organic existence; there can be no disease until there is first normal life with whose physical sequels pathology has to deal. Inasmuch as the whole science of pathology must refer all its material to normal standards, both on the functional and the morphological side, a like freedom belongs to the minor province of mental pathology; psychiatry is at least justified in seeking directly its immediate explanations in the hopeful though neglected field of function.

The Pathological Conceptions of Psychiatry Stated in Terms Implying Morphological Ideas.

In such a survey as this, of so complex a subject, certain difficulties have appeared concerning special aspects of current effort,

in the field of the psychiatrist's labors. Allusion has been made to the remarkable fact of the disharmony between mental physiology and mental pathology. There are signs of the coming of better co-operation, but so far the general fact is that the psychiatrist borrows from psychology what seems fitting with his pathological conceptions, and applies some of its psycho-physical methods; at the same time he hesitates to use the data and even the terminology offered by expert investigators in mental physiology. The importance of care in the use of descriptive words has been mentioned; an inquiry like this draws special attention to this subject and some extraordinary facts are revealed that should receive further notice.

First among these may be mentioned the use of the word physiological; its frequent infelicitous employment by both pathologists and psychologists themselves, emphasizes the width and depth of the traditional gulf between mind and body. The distinction is commonly made between *psychical* phenomena and *physiological* phenomena and the designations "mental side" and "physiological side" are used to make the same contrast. Mental phenomena are themselves physiological, but the usage implies a distinct psychical element as an extra-physiological epiphenomenon, when such a meaning is not intended, and is therefore misleading. The mind event and the brain event are both physiological.

More remarkable examples of doubtful usage, universal in medical literature, and with far-reaching effects, are shown in the words "disease-form," "disease-entity," "disease-process," and "pathological process," which have already been mentioned. These words still suggest old meanings now wholly obsolete; this is so obvious that when thoughtful writers use such words "for convenience," the explanation is not infrequently made that it is not intended to imply that disease is a malign entity which invades the living body and works its evil course. Yet, as usage sanctions it, writers continue to employ the frame-work of words which would once have expressed the ancient parasitic personification of disease. While, in the science of pathology, this extreme conception is corrected by explanation, such words in their modern usage still embody and positively convey the sense of an underlying morphological counterpart of the symptom-complex that runs

its course of progressive degeneration as a disease and reveals the terminal changes in post-mortem findings. To speak of all disease in terms used in these senses is to emphasize structural conceptions of pathology, and thus to impede the progress of the reform which is clearly seeking to give adequate attention to functional conceptions in place of the dominating demand for mature types and forms, and classifications.

It would be interesting to follow out the history of the usage of these verbal embodiments of whole theories. Perhaps a reference to main points will be enough to indicate the purport of these observations. First, as to the nature of disease, it can not be correctly conceived as a state of disordered activity or disorder of a process in an *active* sense; there is a condition produced by a defensive contest between the forces of the living cell and the harmful agencies; it is not a state of perturbed activity but the result of it in diseased organs or tissues. The causes of disease are extraneous and unnecessary to cell life which can exist without disease. The only true *process* in living organisms is the physiological, or life process; the forces that cause the reactions called vital phenomena are inherent and are governed by the uniform laws of an invariable order of nature; like effects result from like causes and conditions, and the life process presents the attributes of uniformity and continuity controlled by the laws of descent. Reproduction is an original property of living matter and life is continuous, and death is not due to such a property; this is a proposition in which there would be a general agreement with Weissmann. Roger[13] reduces the conception of death to the formula: "Death is the result of an arrest of cellular nutrition; whatever the multiple proceedings are that are called into play, the final result is always the same."

A "disease-process" or "pathological process" can not be conceived as comparable with the physiological process; the causes of disease being extraneous to normal cell life, are accidental, multiple, discontinuous, without uniformity. It is consistent with this that even in the problem of tumor growths there are some essential explaining facts; whatever of the various theories may be employed to account for them, they are not indwelling entities

[13] Roger, G. H., Introduction to the Study of Medicine, Trans., 1901.

but depend for their existence upon the inherent vitality of the parent organism, acting under abnormal conditions. When the organism dies the new growth dies; there can be no disease without prior normal life.

When applied to functional disorders, the assumption of a necessary correlation between a "disease-form" and an underlying structural "disease-process" goes beyond the province of morphological pathology; it involves the intracellular changes of physiological chemistry. It is obstructive of a true conception of the wide variations of function that belongs to molecular nutritive and metabolic changes due to variations in condition, irritability, intensity of stimulus, etc., though affecting the same physico-chemical operations by the same agencies. But an authoritative insistence upon the "disease-form" and "disease-process" ideas, with respect to all psychoses, has undoubtedly tended to distract attention from a free consideration of functional conceptions of mental pathology. These and kindred forms of words, with their distinctly morphological stamp, show the character, in some degree, of changing conceptions of pathology. They are kept in use by their convenience; and they appear to be in harmony with certain accepted theories and doctrines concerning the nature of disease and death, and their relation to life. The influence of these doctrines is so great as to require examination here.

The difficulty of determining a sharp limit between life and death has been stated by Verworn[11]: there is no definite time at which life ceases and death begins in a complex organism, for one set of cell complexes may survive another for a long time; but "there is a gradual passage from normal life to complete death which frequently begins to be noticeable during the course of a disease. Death is developed out of life." "Thus death does not come to the cell immediately, but is the end-result of a long series of processes which begin with an irreparable injury to the normal body, and lead by degrees to a complete cessation of all vital phenomena." It is reasoned that "life and death are only the two end-results of a long series of changes which run their course successively in the organism"; also that "death undergoes a development; normal life upon the one hand and death upon the

[11] Verworn, M., General Physiology, Trans., 1899.

other, are merely the remote end-stages in this development, and are united to one another by an uninterrupted series of intermediate degrees." This transition from life to death is termed *necrobiosis*, a word introduced into pathology by Virchow and Schultz; it is understood to mean, according to Verworn, "those processes that, beginning with an incurable lesion of the normal life, lead slowly or rapidly to unavoidable death."

Thus the principle of necrobiosis is to be studied in the cell as well as its vital phenomena; and it is held to apply also to the death of compound organisms. By an extension of this conception it explains the condition of natural death in old age, which thus appears to be physiological. Senile atrophy, which leads finally to death from the feebleness of old age, is to be regarded as simply the end-result of a long developmental series; death in old age is the natural end of an unbroken development and its causes exist in the living organism itself. Life itself never becomes extinct, but there is a continuity in its descent; yet living substance itself, in the form of bodies, is continually dying.

Compare with the foregoing the views presented by Gowers[14] in regard to "diseases from defect of life" to which he gives the designation "abiotrophy" to distinguish a newly differentiated clinical group of conditions and symptoms; he acknowledges Mott's cotemporary recognition of these conditions. The conception is that of "a degeneration or decay in consequence of a defect of vital endurance;" it indicates a failure of life-processes due to defective vitality which seems to be inherent. It is recognized that many degenerative diseases of the nervous system are a result of such defect. The idea is expressed by Mott:[15] "the neurones of a particular system die prematurely, owing to an inherited or acquired want of durability, and the regressive process of decay may be looked upon as a nutritional failure on the part of the same cells to maintain that metabolic equilibrium essential and correlative to functional activity." Every nerve cell of the human body is conceived to be "endowed with a specific durability whereby in the health-perfect organism every neurone

[14] Gowers, W. R., Abiotrophy, Lancet, 1902.

[15] Mott, F. W., The Degeneration of the Neurones, Croonian Lectures, 1900.

possesses an equally adjusted vital energy." This is a statement of one of the two ways in which the regressive process occurs, the other being "the metamorphosis incidental to old age manifested by a gradual and general enfeeblement of the functions of the whole nervous system." "In contradistinction to this normal senile decay are the premature pathological processes of decay attacking groups, systems, or communities of neurones subserving special functions." "The process may be regarded as the inverse of development;" in harmony with these views Hughlings Jackson is quoted in regard to the helpfulness of considering diseases of the nervous system "as reversals of evolution, that is, as dissolution." Mott conceives that the process of primary degeneration is, morphologically, an evolutional reversal commencing in the structures latest developed.

In the extensive literature concerning the life-processes and their failure in disease and senility other diverging views may be cited, but the purpose here is only to indicate certain ideas and reasonings that bear upon the pathological conceptions with which psychiatry has had to labor. With respect to physiological old age ending in natural death the contending view is that the decline of life manifests the summation of the effects of external injuries, the damage of wear and waste, and is not something different and apart from disease. It is to be noted in the doctrine of necrobiosis that the idea of a "disease-entity," with its course and process parallel and antagonistic to the life process, is avoided by conceiving life or the life-principle as the sole producer of two series of developmental processes, one of which leads to its end-result in the existence of normal being; this life-process is then conceived as turning against itself in another process of producing a series of decrements that reaches to the end-result of non-existence. One result must exclude the other, and we admit that death is the common goal; the life of every living thing ends in death and there is only one end-result,—death is developed out of life. But by shifting the position to the larger view the attempt is to set up a dual conception of two processes, equal, parallel, antagonistic yet conjoined. The truth is that the whole of life comprehends all living nature; the individual parts that bloom, fructify, and perish, and the fragments chipped and sloughed off from the great embodiment of life in matter, are always dying

or dead, but the one chief process of life goes on, and we say that life is developed out of death. The minor casualties of injury and disease represent the chance encounters of living substance, in its struggle for existence, with the discontinuous opposing forces of the world of living and material things. Living substance dies, but life is immortal. We may describe, in such figures of speech, the dual developmental processes with their contrasting end-results.

The paradox of the "processes" appears also in the application of the doctrine of abiotrophy which, of itself, helps to make clearer the terms of the problem by the conception of a failure of nutritional energy with a consequent limitation of the durability of the organism and of the length of life. In applying this doctrine to certain pathological changes it is said that the overgrowth of interstitial neuroglial tissue, when the nerve elements decay, is in consequence of the fact that the two elements have "a common but inverse vitality;" when the nutritional energy fails to maintain the growth of both, the more highly specialized tissue ceases to live, while the less specialized tends to overgrow with the tendency of the former to decay. It is explained that these "tendencies are in the opposite direction, but they seem to be coincident results of the same vital condition."

In the many well-known conditions of constitutional weakness and instability it is easy to understand the nutritional failure to develop normal growth and efficiency of function, or to maintain them, and the consequent recession of the developmental processes, even to the cessation of life. The doctrine of dissolution as characterizing the many conditions of such recessions is clearly consistent. When biological conceptions are invoked, it is also easy to comprehend the general principles of development whereby, through physiological reactions of the organism, there are adaptations and modifications of characters due to changes of environment and favorable to life and health; it is intelligible that through use higher types of characters may be produced, or through disuse recessions to more primitive types, under the causative influences of the environment, and all this may be within the physiological limits of the organism as expressions of the processes of life. In the domain of biology it is, no doubt, helpful for descriptive purposes to conceive of the developmental

forces as acting in an inverse direction, producing the effects of reversals and regressions. But when this latter conception is applied to pathological conditions, it is in harmony with our prevailing modes of thought in medicine that there is conceived to be an attack, as of some harmful agency, upon the living organism; a pathological process of degeneration is supposed to ensue which is a regressive process of decay, and this implies its active going backward against the normal tendency of the nutritional energy to maintain life and growth. As a further explaining principle the conditions of acquired or inherited defect are conceived, and a process of degeneration of which "heredity" is the motive force; thus the development forces turn against themselves and working in the inverse direction produce decay. It is the all-pervading disposition to seek an immediate cause for every effect, and it is easy to describe agencies and processes. When the stamp of "degeneracy" is fixed upon a fated organism we commonly think of its possessor as a "degenerate" descending to inevitable doom.

Is it not evident that there is a misleading ambiguity in the prevailing usage of the conception of "processes"? It is necessary to the notion of a process that there is a passing over of one set of phenomena into another, and this constitutes a change.[18] A "process" is constituted of a series of such changes when one stage or aspect of the process necessarily succeeds upon another. The action of a causative force or stimulus is essential to the change, as in the biological processes. The requirements of the conception of two coincident processes appear in the principle of the psycho-physical parallelism in the relation of mind and body. It being the general fact that certain changes in those brain and nerve processes with which consciousness is associated are always accompanied by changes in consciousness, and the converse being true also, then certain other scientific principles are involved: (1) the principle of *equal continuity*, with no breaks in either series of changes,—if one series is continuous the other must be continuous also; (2) the principle of *uniformity*, when certain phenomena in each series in brain-process and conscious state are essentially associated, then the concomitance of those

[18] Baldwin, J. M., Development and Evolution, 1902.

terms may be looked for on all other occasions; (3) the principle must be a *universal* one,—whenever we find a series of phenomena in either of the parallel trains of events the principle of parallelism has its application. Structure and function must exist before there can be any disease; the phenomena of life represent the supreme process in animate nature; the phenomena of disease and degeneration appear as the results of discontinuous interferences with the life-processes in which "normal function is acting under abnormal conditions;" the assumption of a "disease-process," or of a "pathological process" in the same sense, fails to meet the essential requirements of a "process,"—it is certainly not comparable with the life-process. If we must speak, for convenience, of "pathological process" and "degenerative process," the terms should be used only in a very narrow sense of comparatively transient interferences, or in the sense of referring to normal function acting pathologically."

To the inquiring mind the contradictory presentations of these matters is confusing and creates difficulty. The subjects are, in their nature, complex, and our knowledge is limited, but much ambiguity is undoubtedly due to the lack of precision in the statement of the terms of the problems. One of the most common obstacles to clear thinking appears to arise out of the fact that for every predicate implying action we have to think of an actor, or causative agency, and our minds habitually conceive of some form of personification of such an agent as possessing motor and motive attributes. Thus we think of life and death, and artists picture them, in human forms; we are prone to dualistic conceptions and the mind delights in such paradoxical phrases as, there can be no death without life; no disease without health; no evil without good. The use of the active predicate abbreviates expression, and enlivens speech. Professor Sanford,[18] discussing the influence of physics on psychology, notes the fact that, as the result of man's long primitive practice, his habits of thought are

[17] The writer's views of the inadequacy and misleading influence of the "disease-process" conception, as a question in psychiatry, was first presented to the American Medico-Psychological Association at its meeting in Washington in 1902, in an unpublished paper on the principles of mental pathology and the nature of mental symptoms.

[18] Sanford, E. C., Psychology and Physics, The Psych. Rev., Vol. X, 1903.

objective, and the language he uses is saturated with physical connotations and metaphors. It is not easy for even the best of us, he says, to keep clear of this inveterate physical-mindedness and the subtle suggestions of language; we help out our thinking by material figures and feel a sort of dumb compulsion to make our psychological theories accord with physical requirements. Ebbinghaus is quoted as describing the older psychology as distinctly "mechanistic," many analogies from familiar material processes being used in the exposition of mental phenomena. In regard to essentials, Professor Sanford thinks it may be said that psychology has outgrown this method. But, turning to our own field of the medical sciences, the ruling tendency of our thought and language leads to the conceptions of "disease" and "process," for example, in terms implying immediate causative agents. The familiar conceptions of a process of anabolism and a contending process of katabolism in the cell are treated as the analogues of the life-process and death-process. The analogy is extended to include in this conception the fact that in the whole compound organism the anabolic processes overbalance the katabolic till middle life, when the two processes are more nearly in equilibrium, and that thereafter katabolism predominates more and more in the normal decline of old age. It is held that in the broadest sense the process of senescence begins with the beginning of life in a progressive diminution of the power of growth; and with the progressive waning of the vital powers the leading somatic changes accompanying old age are atrophic and degenerative. The same conception concerning the anabolic and katabolic processes is equally legitimate concerning the idea that an inherent tendency to degeneration is transmissible; the inherited constitutional weakness and diminution of vitality may be interpreted as belonging to the series of changes which imply a process of dying continuing through several generations.

There appears through all these reasonings, the prevailing method of thinking in terms of "processes." The inquirer is moved to ask whether the normal processes of anabolism and katabolism are not both essential to the maintenance of a health-perfect cell and both, therefore, parts of the normal life-process? We do not think of the most healthily active cell as one most vigorously dying. If we consider the physico-chemical changes

in the cell inclusively as a process of metabolism, it is consistent to think of the normal building up and breaking down of complex compounds in growth, work, and repair as harmonious, and not antagonistic, operations. Hering separates assimilation as only a qualitative chemical change from growth as quantitative, and in like manner dissimilation from atrophy. As to the transformations in the cells and the overwhelming number of substances excreted from them, little is known of the processes by which these are derived; but many products are formed in both the ascending and descending portions of the metabolic series. Disordered and imperfect adjustments of the molecular arrangements of living substance may affect and arrest both anabolism and katabolism; defect of the latter and not its predominance can be conceived as a cause of the death of the cell.

In physiological theory the distinction is made between death of the tissues and somatic death: in the former, it is reasoned that constantly throughout life the molecules of living matter are being disintegrated and whole cells die and are cast away,—and that life and death are concomitant; in the latter, death occurs when one or more of the organic functions is so disturbed that the harmonious exercise of all the functions becomes impossible. This distinction has been referred to, and further inquiries are suggested here. In respect to the death of the tissues, the "unit cell" being an organism of high complexity as to its structure and function, and its life-process, is not failure of this life-process of the co-operative adjustments within the cell truly analagous to the failure of life, or somatic death, in the whole compound organism? In this connection the question again arises as to the concomitance of the processes of life and death,—the latter being theoretically analogous to the constant disintegration of living matter. Hering's idea that assimilation and dissimilation are distinctly separate from growth and atrophy permits the former to be regarded as one intimately combined and normal metabolic process in a working cell, having no theoretical significance except as wholly contributing to the maintenance of the function of a health-perfect cell. The daily shrinkage of the working and fatigued cell may be regularly made up by rest and nutrition; this is not atrophy, either simple or degenerative, for the continuity of cell-life may be unimpaired and only the labile molecular inclu-

sions be changed by normal use which promotes the health of the cell. On the other hand, the function of growth, being of a more primitive type, would appear to contain the explaining principle of the life-process as contrasted with the work-process. Consistent with this appears to be the sharp differentiation made by Adami between cells which have the habit of growth and those which have the habit of work; these two functions cannot be exercised by the same cell at the same time, and a normal working cell may revert to the type of a vegetative cell. This implies that cells of the primitive type having only the function of growth, their "work" (in the common usage of the word), is without external manifestations of energy; but that the function of work, which is the power to store potential energy within and to produce kinetic energy in external work, belongs to the highly specialized cell as an acquired character which it may lose. This being true we may understand that assimilation and dissimilation, in the limited sense employed by Hering, constitute a special kind of inclusive metabolic process different from the molecular changes, perhaps less complex, productive only of growth. It is not conclusive that katabolism typically represents destruction of life though it means changes of substance in which life exists. These considerations suggest questions that are not in harmony with the generally accepted theory of life and death as concomitant processes based upon an assumed analogy to the physiological processes of the healthy living cell.

This inquiry is intended only to consider some examples of current theories with the question whether they can be resolved into more simple conceptions. The life-process being conceived as the one supreme "process" in living organisms, this implies its maintenance by causative forces; assuming each individual to be endowed with a given vital durability, determined by antecedent conditions and subject to modifications due to favoring or adverse influences, the life-process reaches its possible attainments and finally fails in the struggle for existence. Injury, interference with normal function, overuse and disuse, disease, and the causes of the changes of senility present alike adverse influences which the organism fails to overcome. We must speak of disease and use its meaning as referring to results in diseased parts, organs, or tissues; and we may commonly think of the word

as implying a combination of disorders of functional activities which may or may not be associated with ascertainable structural changes. But it should be remembered that we are thinking of a patient and not a "disease." There is no disease-process; no causative forces exist in nature that induce and carry on processes of degeneration and decay; gradual failure is the summation of the failures of community work due to the complexity of the organism, each organ being subject to the harmful influences of the functional failure of other members of the community. There may be deterioration of function, and degeneration of structure in the sense of failure to maintain it; there may be also regressions or rather recessions of results, but no active pathological "process" of going backward in the structural reductions called "degenerative." These considerations do not support the idea of a "physiological old age," based upon the conception of a normal process of degeneration or decay as though the results of senile conditions in structural changes are different from disease. This doctrine of natural decay and death makes great trouble in dealing with senile conditions in medico-legal cases; and in like cases concerning degeneracy in earlier life the most contradictory and confusing notions prevail. They are not in harmony with practical experience. This is largely due to the adoption in psychiatry of generalizations in regard to heredity not yet warranted by the science of biology. The morphological ideas in the prevailing pathological conceptions, and the descriptive terms employed, have undoubtedly obstructed the progress of psychiatry. From all such preconceptions the psychiatrist should be wholly emancipated.

A functional conception of pathology is not in conflict with a pathological conception in the sense of the long-used distinction between functional and organic diseases. The objection to this is not lessened, but the fault is not with function. Life and the science of physiology are first; function and all that pertains to it are primary facts of the activities of normal life. Much disharmony in the conceptions of pathology has been due to the setting up of ideas of "organic diseases" as the chief factors in pathology, and the minimizing of function as worthy of serious scientific consideration. Our conceptions of function are uncomplicated as relating simply to the modes of action of the several

parts of the organism; but we must think of organic disease in two ways, of changes of structure in results, and of changes of action in "process." The functional factors are necessary to organic disease and their distinction and true relation should be discovered in their combination. The organic changes of disease are the sequels of interferences with the prime process of normal life.

Physiology and its Relation to Psychology.

Physiology acknowledges its debt to Johannes Müller, who mastered the two great sciences, morphology and physiology, and was a teacher of pathology. He took an active interest in psychology, regarding physiology by empirical methods as essential to advancement. After Müller's death, nearly fifty years ago, the fields of his scientific work were divided by the specializations through which the present marvelous advancement has been gained. Physiological chemistry became independent of physiology; and physiological psychology developed on the lines of psycho-physical experiment. It was then that mental physiology should have made its union with mental pathology. It is easy to see that psychology tried to accomplish this by its attempts to find a morphological basis for its investigations through the experimental method, but the field for this was limited. Psychiatry, under like limitations by its morphological attitude, met the invitations of psychology with inherited distrust of a functional pathology; psychology was turned upon itself, and also, much of its own choice, sought and found open ways back into the attractive regions of the investigation of psychical function and philosophy. The latter phase of psychiatrical interest in experimentation has been mentioned, and is full of promise, but such movements require years of time. The method of exhaustive study of the clinical expression of psychical reactions through speech and behavior, and the use of experimental tests which bring out individual characteristics and their variations, are gaining a share, which must increase, of the attention and interest heretofore centered in the pathological laboratory. This is a new and definite revelation of a tendency toward the study of a functional conception of pathology in psychiatry.

Psychology is still kept apart, however, from the practical study

of mental pathology; this is probably, in part, its own fault; although some students of psychology have shown the requisite interest, there is a lamentable want of opportunity. What would really be the most promising interest in psychiatry should be found in the establishment, in hospitals for the insane, of true experimental psychology, with physiological methods applied clinically, according to the principle of using instruments of precision in other clinical work."[1] The observer of these clinical manifestations trained both as a psychologist and physiologist would find many new variations of phenomena not seen in the normal subject. A hospital for the treatment of mental disorders is a laboratory of itself where nature makes experiments in the excitation, suppression, and combination of naturally correlated psychical and physical reactions, giving many clearer displays of their nature, both by their intensification and absence.

Mental diseases are peculiarly and essentially constituted of mental symptoms; the study of their phenomena must refer them to mental physiology, for the laws governing vital phenomena under abnormal conditions are not different from those of normal life. The study of mental physiology under pathological conditions should be helpful for both psychology and psychiatry.

This inquiry being assumed to be free from all preconceptions as to the true nature and place of mental pathology, and as to forms and names of mental diseases, it may be turned to an examination of the relations of psychology, or mental physiology, to all of the associated reactions of the physical organism. This is the necessary basis of pathological physiology for psychiatry. Approaching the subject newly from this point of view the physician should seek to inform himself concerning at least the immediate facts of mental function and the accepted postulates of

[1] For an account of the beginning of the present laboratory methods, both psychological and chemical, at the McLean Hospital in 1889, see "Les Laboratories de Psychologie en Amerique," by E. B. Delabarre, L'Annee Psychologique, 1895; also "Laboratory of the McLean Hospital," by G. Stanley Hall, Am. Jour. Insanity, 1895. The subsequent development of the pathological laboratory and the clinical methods,—of the laboratory for pathological chemistry in 1900,—and of that for pathological physiology and psychological experiment in 1904, constitute a true psychiatrical clinic of a special character, designed from the outset for the investigation of the functional conditions of mental disorder.

psychology. But in preparation for such a study it should be recognized that mental physiology is included in general physiology as concerning a part of the vital activities of the living organism; also that certain general modes of action in the body always have a part in mental function. Some of the symptom-factors of mental disorder have their genesis in conditions that affect primarily other parts of the organism than the brain. General physiology therefore claims the attention of the psychiatrist to certain essential principles whose importance can only be indicated here by mentioning some of those of immediate interest; the purpose is to present some of the physiological reasons for the proposition that the problem of psychiatry lies in the functional psychoses.

A distinctive feature of modern biology is the fundamental conception of a living body as a physical mechanism (Huxley); underlying all the phenomena of the animal organism is the reflex action of the nervous system, and physiologists generally agree to consider every action as aroused by some cause or stimulus (Sedgwick); under the biological conception man is an organism for reacting on impressions (James). The nervous and mental mechanisms being regarded as constituted of three minor ones, their action appears in a sensory,—a central or transformation,—and a motor process; in the central process part of the work done by the nervous system leads to consciousness; the response to a stimulus may be a muscular contraction, a secretion in a gland, a vascular change, or even a trophic or metabolic influence,—all pertaining to the centrifugal system. While reflex action is not conscious action, one may be conscious of the act, and in many cases conscious changes precede, accompany, or occasion the change. The most important reflex of all is commonly ignored, viz., that which provides for the constant readjustment of the parts of the system to each other, by virtue of which the entire mechanism is receptive even to minimal stimuli. This may be termed the *neuro-equilibrium reflex*. The tone of the nervous system is this wonderfully complex adjustment of inhibition and stimulation. Every metabolic process in all the nerve cells exerts its influence on the entire nervous system. One of the most remarkable reflex associations is that between vaso-motor alterations and the seat of the emotions, which are thus intimately involved with the viscera and vessels in their minute connection with the sympathetic system. This association has a most important influence in the mental sphere, though beyond this fact little is yet known of the physiological basis of these reactions.*

The intimate connection of mental states and the physical reactions of the whole body is well recognized by both physiologists and psychologists;

* Cf. Baldwin's Dict. of Philosophy and Psychology.

it is of fundamental importance in psychiatry. Lombard[21] describes the cells of the central nervous system, during waking hours, as continually under the influence of a shower of weak nervous impulses, coming from the sensory organs all over the body; moreover, activity of brain-cells, especially emotional forms of activity, leads to an overflow of nervous impulses to the spinal cord and an increased irritability, or, if stronger, excitation of motor nerve-cells. There is a constant inflow from the environment of a vast number of excitations ordinarily disregarded by the mind but all the time influencing the nerve-cells; the effect of this multitude of afferent stimuli, in spite of their feebleness, is to cause the motor cells to continually send delicate motor stimuli to the muscles and to keep them in the state of slight but continued contraction or tension of *muscle-tonus*. In these mechanisms is the seat of the kinæsthetic sensations and the functional alterations that play so essential a part in contributing to the well-known symptom-factors of the "sense of effort" and "inadequacy," and motor "retardation" and "excitation."

Some of the physiologists have given much study to the relation of mental and physical states. Sherrington's[22] discussion of common and organic sensation and the contributing cutaneous sensations, has an extraordinary interest for psychiatry. Common sensation is understood to mean that sum of sensations referred, not to external agents but to the processes of the animal body, and these sensations possess strong affective tone. Total common sensation is the result of many component sensations, and those that arise in internal organs and viscera contribute a great deal to the total sum. Affective tone is the constant accompaniment of sensation; every form of common sensation is based on perception of an altered condition of the body itself. In connection with this comes the fact that all forms of common sensation present significantly pre-eminent attributes of physical pleasure or physical pain; and all are linked closely to emotion.

The elaborate researches of many observers in recent years concerning the nature of the muscular sense, the senses of touch, pain, and temperature, and their special mechanisms, strengthen the common fact that their sum contributes to the effects upon mental feeling-tone. They are in their nature productive in part of the organic sensations. Ribot[23] has studied, more than anyone else, the psychology of the emotions and the logic of their mental and physical reactions; he describes the presentations in the conscious mind of organic sense as constituting a vast aggregate of impressions arising from within the organism and continually flowing towards the superior nervous system; it is this region of subject consciousness that

[21] Lombard, W. P., The General Physiology of Muscle and Nerve, Am. Text Book of Phys., Vol. 2, p. 143.

[22] Sherrington, C. S., Cutaneous Sensations, Schafer's Text Book of Physiology, Vol. 2, p. 969, et seq.

[23] Ribot, Th., Diseases of the Personality, and the Psychology of the Emotions.

gives the consciousness of being,—the sense of personality. The sensations from the special senses are intermittent, of high intensity, and small in volume compared with the voluminous though faint, continuous, and all-pervading commotion produced by the organic sensations. These are intense enough, however, to be susceptible in health of psychical interpretation as a sense of well-being; from their disorders and intensification come the sense of ill-being. These are the long recognized changes of coenesthesia. Professor James has shown the intimate relation of the emotional tone to bodily states; and Professor Ladd makes clear the usefulness to psychiatry of a study of the affections and emotions in their relations to the train of ideas, and to the different bodily organs; also the reflex effect of the changes in these organs upon both the feelings and the ideas.

Underlying all these physiological phenomena of the living organism is the primary attribute of irritability. All the functional phenomena being influenced, within normal limits, by changes of irritability in the central, peripheral, sensory and motor mechanisms, and these changes being dependent upon the processes of nutrition and metabolism, and upon conditions of use and disuse, rest and fatigue, etc., the alterations of functional efficiency in the associated reactions of mind and body make the study of cellular physiology imperative for psychiatry. Some of the most commonly observed and characteristic symptoms in mental diseases may be referred to such functional disorders in the physical organism.

The healthy organism being fully constituted in structure and function for its work, when put in use begins immediately to be subject to modes of action which are the effects of its own activities; in other words the living organism acquires functional characteristics as the immediate effects of use. Some of the common physiological laws have a special importance here because they govern the work of the physical mechanism and therefore of all correlated mental reactions, not only in health, but in disease, as long as any functional activity continues.

(1) Association and Habit are fundamental in mental life; in respect to the association of ideas it is not the ideas that associate but the elementary processes of which the ideas are composed; on the physical side the law reduces to the law of habit (Titchener). Memory is an associative process; mental reactions (including perceptions, ideas, emotions) are associated with their physical correlatives and motor consequences. Habit is closely related; it is the functional disposition to repeat organic processes. This law of association and habit applies to "organic memory"; thus "associative memory" is fundamental in, and unites, both psychical and physical reactions.

(2) Inhibition. The animal organism has a motor character. All sensations and mental states are motor; the entire neuro-muscular organism, mental and motor, acts primarily as a whole, governed by the laws of association, and this is subject to control. The phenomena of nervous life are the outcome of a contest between what we may call inhibitory, and exciting or augmenting forces" (Foster). It is conceivable that all nerve-centers are normally at all times subject to continuous control or inhibition, and are maintained in a condition of mobile equilibrium by the opposition of this inhibition to their own inherent tendency to discharge (Mercier). "Inhibition is an action which obstructs or impedes another action, and which weakens or arrests it if it was already in action" (Oddi). "Voluntary action is at all times the resultant of the compounding of our impulsions with our inhibitions" (James). "The inhibition of a mental process is always the result of the setting in of some other mental process" (McDougall). It may be said as a physiological conception that in living substances there are conditions of cohesion and inertia by virtue of the anabolic tendency of its physical and chemical elements; this may be called *physiological inhibition*, and it is the primary factor in the mobile equilibrium conservatively holding the balance against the tendency to discharge induced by constant external stimulation. The psychological conception of the essential physical fact, is that one neural process inhibits another; it may be said that as a will-impulse implies a neural process, which may inhibit, or excite and augment, some other mental or neural process, this may be called *voluntary inhibition*. The great importance of the study of inhibition, which is only indicated here, lies in its holding an equal and counterbalancing place in mental and physical processes.

(3) Energy of muscle and nerve. This refers to the principle of the storage and discharge of energy, and the biological theory that functional activity of a specialized tissue depends primarily upon chemical changes in its individual cells. The fundamental idea is that in the resting state the cell elaborates highly complex compounds and that these break down to yield the energy by which the cell does its work; discharge and restoration of energy is common to both nervous and muscular elements. Hughlings Jackson characterizes the animal organism as "an appa-

ratus for the storage and expenditure of nerve force." These principles are of essential importance in the study of mental disorders. Inasmuch as functional efficiency must be taken as a measure of the available energy, it should be expected that exhausting influences would reduce functional power. Such reductions characterize all forms of the functional psychoses, and the variations of their symptoms are consistent with this principle.

(4) Physiological use and fatigue,—waste and repair. The law of use includes the wholesome effects of those just cited; normal use develops functional activity and strengthens power, while disuse weakens function. Overuse begets fatigue, and normal fatigue presents mental as well as physical effects. *Physiological fatigue* may be continued beyond the point of regular recovery by rest and nutrition; it then becomes the *pathological fatigue* of nervous exhaustion or neurasthenia with the characteristic symptom-groups. A functional conception of the significance of these groups of mental and physical symptoms should stimulate not only such a precise observation of them as is needed to constitute "disease-forms" and mature types, but should lead to their being analyzed and traced to their functional sources in the whole organism in accordance with the principles of general pathology. This method reveals the genesis in physical states of some of the most characteristic mental manifestations. Beginning with the fundamental attribute of irritability, for example, wide variations occur within normal limits, but more striking and significant changes appear in all forms of pathological fatigue, and the functional phychoses; the irritable weakness and languor of neurasthenia, and the psychomotor excitations, retardations, and "confusions" of melancholia and mania are examples. The study of these alterations of irritability involves the whole problem of reflex-action and the mechanism of responses to stimulation of both mental and physical functions. It is to be recognized also that all of these reactions contribute to the sensory returns from the whole organism,—from the viscera, muscles, and even the special senses including the special dermal sensations, to the central nervous system, constituting the kinæsthetic and organic sensations. In mental physiology a functional conception of these reactions reveals their importance for an understanding of the genesis of emotional changes, and the alterations of the affective

tone in states of persistent mental depression. The sense of well-being and ill-being depends upon these variations. Most important of all, because so completely neglected in psychiatry, are the bluntings and losses of organic sensations and the consequent effects upon the feeling-tone and ideation; in this regard attention should be called, especially, to a remarkable fact well-established in physiology and psychology. It is evident that the normal irritability of nerve and muscle requires the maintenance of a certain chemical constitution; slight variations from this, temporary or continuous, alter or may destroy the irritability. Further, it is noticeable in most cases that the first step toward deterioration is a rise of irritability; the cause being increased or continued, sooner or later exhaustion supervenes, the irritability lessens, and is finally lost.[28] These functional reductions of sensibility, in a wide range of varied degrees and combinations, are constant symptom-factors in psychiatry.

The relation of mental physiology having an essential importance for psychiatry there should be a first reference of all mental symptoms to their functional sources in the organism as far as possible with respect to their correlation and association with alterations of bodily functions. By the genetic method study should begin with the minor changes from normal action; these alterations show intensifications and losses of function, and symptom-groups are modified by their varied combinations.

Mental Physiology and the Functional Psychoses.

The true basis of a pathological physiology in psychiatry is mental physiology and its physical correlations of function; variations of nervous and mental reactions in their initial stages may be wholly functional. Approaching the subject newly from this point of view the physician is assumed to know the modes of reaction of the nervous and mental mechanisms and that part of the work done by the nervous system leads to consciousness; he should know also the primary postulates of psychology. Having to study the operations of other minds, he needs to distinguish, in descriptive terms, his own conscious experiences.

A helpful method in psychiatry is to separate the experiences

[28] Am. Text Book of Physiology, Vol. 2, p. 61.

that relate to the outer world from those that belong to the inner life. Professor Sanford presents this idea in discussing the relation of psychology and physics, to which reference has been made. He describes the conscious experiences that may be called physical phenomena: percepts or series of percepts belonging chiefly to the sense-fields of sight, hearing, and touch, including under the latter the kinæsthetic senses as well as pressure, heat, and cold; he speaks of these as the senses that mediate the "life of relation" with the world outside our own bodies,—the "physical group of senses." Taste, smell, pain, the general and organic senses—all having little external reference—are not mentioned at all in physics, except incidentally. The method of psychology on the other hand, while not essentially different has broader outlines; its phenomena are various conscious experiences, including all those with which physics sets out, but also experiences involving pain, organic and general sensations, feelings, emotions, memories, images, volitions, processes of reasoning—and everything that belongs to such experience. Physics, dealing with outer experiences only, practically works with terms derived exclusively from the kinæsthetic and a part of the dermal and visual experience in its spatial function; these are the senses capable of perceiving matter in motion, and the physicist in using their terms excludes reference to the other senses of the physical group, sight, hearing, and touch. Psychology deals with both inner and outer experiences.

This general view of mental physiology has a special value for psychiatry which it is possible here only to indicate. The conception of a relation between conscious experiences and outer physical phenomena implies an organism, with its special "physical group of senses" in touch with the outer contacts, acting as a medium of transmission between the two; this medium may be conceived as forming also a *somatic* group of senses in the paths of communication. But this mechanism of transmission does not afford even normally, open ways without friction or obstruction; to its reports of contacts with the outer "life of relation" it adds the multitude of returns with all their variations from its own physical workings, and for this process the same mechanism of kinæsthetic and other senses, in a new grouping with others, including the organic and general sensations, is used. In abnormal

as well as normal conditions these returns, however imperfect, stand for the truth and the whole truth in conscious experience; in health we think as little as possible of the medium of transmission, and in all conditions of well-being or ill-being we can only describe our organic feelings in general terms. We do not recognize for the most part the sources of these sensations, yet they have a controlling influence upon our minds. These considerations indicate three groupings of the functions of the sensory mechanisms of conscious experiences: (1) the physical group of senses of the outer "life of relation"; (2) the somatic group of senses of the inner life—our conscious experiences of our own bodies; (3) the central psychical life which includes both of the other groups of conscious experiences besides those belonging distinctly to its mental aspects. The interest of this to psychiatry is that comparatively little attention has been given to this inner sensory field of the sources of conscious experiences; yet, it may be said, here are the conditions and the very material of bodily and mental stimulations and sensations with which the mental work is done. These explaining principles have been almost wholly omitted from the accepted formulæ of the conceptions of modern advanced psychiatry which has chiefly concerned itself with the motor aspects of mental life and expression. These physiological references are needed to explain many of the symptoms of the psychoses and should have their full value in the formulation of the principles of mental physiology and psychiatry.

A functional conception of mental pathology[*] directs observation to the first and smallest departures from normal action, upon the principle that all variations of a pathological character are subject to the laws of normal function acting under abnormal conditions. The study of the development of symptoms is equivalent to noting the genesis and progress of the conflict between the

[*] Cf. Barker, L. F. Methods in Medicine, Boston Med. & Surg. Jour., June, 1905. Referring to the value of a functional conception of pathology, it is also said that "as medicine has become more scientific, the mind has ceased to be satisfied with such descriptive classifications as the clinical symptoms and syndromes represent and with 'clinical types' set up, and is ever on the alert to replace them by classifications of a developmental or genetic character." Quoted from an address before the Mass. Med. Soc. published while this paper was in manuscript.

functional energies and the abnormal conditions. Symptoms are the results in changes of action,—organic effects are the results in changes of structure; by the genetic method the sequences of functional phenomena are noted; in the functional psychoses there are variations of functional efficiency manifested by its reductions and recoveries. The following characterization in outline of the psychoses is an application of the functional principles referred to in the foregoing pages. For the purpose of tracing the several orders of symptom-factors from their genesis in functional sources they can be considered most simply under the divisions of the mental elements—intellect, feeling, and will, as these terms are used in modern psychology for purposes of classification.

1. The Functional Psychoses.—A study of the large group of cases of non-deteriorating mental disorder yields certain general conclusions as to what may result to the normal well-endowed individual when subjected to the effects of use, disuse, overuse, and stress. Beginning with the least degrees of decline of functional vigor, below normal fatigue, there is no point in the declension where a line can be drawn definitely marking a change from one named "clinical type" to another, down to the lowest degrees of vital energy and complete loss of voluntary function. Throughout all observations of these changes the essential principle of variations of irritability is never to be lost sight of, nor the fact that the first step toward deterioration of function is characterized by a rise of irritability. Another pervading principle is that among the multiple functional mechanisms failure of energy is unequal, and that changes and losses of irritability must apply as much to sensory as to motor function. The word "psychosis" can be used most profitably as correlative with "neurosis," and as including both its proper psychological and pathological meanings leaving the differentiations of sanity and insanity to be indicated by those words. A basis of inquiry, as above described, prepares the way for the examination that comes first in order of the initial departures from mental integrity, viz.: The affections called imperative and fixed ideas, and the primary asthenic conditions of neurasthenia before the after-effects of chronic states have supervened.

Insistent and fixed ideas refer to a wide range of kindred cases of affections that can happen to sound minds in persons neither temporarily nor constitutionally neurasthenic. The functional elements are normal and the affections may attain characteristic forms in normal minds; but this happens to them more readily when there is neurasthenic reduction of inhibitory energy and greater degrees of intensity and persistence occur in association with constitutional instability. All observant sane persons estimate the purposes of others by interpretations of their speech and behavior, and thereto fittingly adapt their own conduct influenced by inferences and judgments in a manner that would indicate "paranoid"

suspicion under certain circumstances. Inasmuch as this is a universal, functional, self-protective principle, sane persons have normally the functional disposition to produce ideas of suspicion and persecution, but well-balanced minds control thought and speech. In *any psychosis*, however, associated with asthenic conditions there may be "paranoid forms" not belonging to that psychosis as essential to the symptom-complex; this reaction is liable to become casually intensified or further developed and fixed by habit. In many cases not "psychasthenic," nor physically neurasthenic, the affection is purely a functional accident; it may involve all forms of emotional reactions, other than "phobias," and many cases recover.

Neurasthenia, in its early conditions, uncomplicatd by the effects of habit, presents the same elements, in mild degrees of functional reduction, that characterize their greatly varied combinations in the symptom-complexes of the graver conditions of melancholia, mania, and exhaustion psychosis or confusional insanity. These neurasthenic conditions may occur in all persons, under sufficient stress, but when there is constitutional weakness the power of resistance is less. The functional elements of the organism, all working together, constitute combinations of community-work of extreme complexity; these elements being unequally reduced in efficiency the "clinical types" are very much varied. A method of analysis of symptoms with the endeavor to estimate their functional values and their relations to their physiological sources will appear under the following topics:

The functional psychoses constituting the main group of non-deteriorating affections pathologically regarded as insanities, all have a basis of some kind or degree of asthenic reduction of functional efficiency; as already indicated, these may include the whole range of degrees from simple cases of nervous exhaustion downward through the simple and pronounced cases of melancholia and mania, including all varieties of phases and combinations of the symptom elements; also including the more actively induced exhaustion psychoses and confusional deliria. Functionally considered, it is proper to regard all these cases as "functional psychoses" until proved to the contrary. Function comes first as the present criterion; organic change is a result. Cases carefully diagnosticated characteristically tend to recovery. The designations, neurasthenia, melancholia, mania, etc., are simply valuable descriptive terms; they are thus not correct names of diseases as clinical types and we have yet to study broadly the genesis and development of these conditions. By the functional method we have merely advanced, as yet, little beyond the general fact that two classifications may be made of the psychoses—the non-deteriorating, and the deteriorating. By the morphological, clinical-type method there is a singular lack of success in adopting principles of valuation of symptoms by which men of good minds can reach like conclusions. We are not yet ready to determine species; this should be aided by the study of the genetic character of the symptom-elements.

The significance of the unifying characters of the non-deteriorating range of psychoses may be made much clearer by grouping them according to the functional sources of the symptoms and their own natures. The symptom-factors thus fall into natural groups, which should be studied with complete freedom from preconceptions of "disease-forms." No more is attempted here than to harmonize these groups with the elementary postulates of psychology, and with the general physiological facts heretofore cited.

(1) *Feeling.*—(The feelings and emotions.) The emotional variations that are pathologically persistent are in close relation with the changes of bodily states which are represented in the central nervous system by the organic, kinæsthetic and general sensations; the sum of these has, physiologically, a strong influence upon mental feeling and therefore in pathological conditions the emotional tone of the psychical sphere corresponds with the sense of personality by "states of mental depression" (melancholia) associated with malaise and ill-being, and "states of mental exaltation" (mania) with sense of well-being and false euphoria. The complex sources of the sense of body have been described and the changes of irritability due to fatigue and other causes; the consequent variations of the sense of physical pleasure and pain are closely connected with the rise and decline of irritability, its intensification and losses, but not with parallel changes.

In the emotional states of "neurasthenia" the depression is variable; of "melancholia," persistent; in both the feeling-tone may be combined in various ways with the first degree of functional deterioration of irritability marked by agitation, restlessness, "irritable weakness" (psycho-motor excitation), or by dulness, slowness, languor (psycho-motor retardation). In nervous exhaustion and melancholia the feeling-tone is constantly influenced by bluntings and losses of organic sensation, strikingly shown in the loss of the sense of fatigue—"fatigue-anæsthesia," and the various unequally distributed conditions described in the natural order of decline as hyperæsthesia, hypoæsthesia, paræsthesia, and anæsthesia; also ease and obstruction of motor expression have their reflex influence upon the affective states as in a feeling of facility, or the "sense of inadequacy" and the "sense of effort."[28] Hopelessness, introspection, retrospection, apprehension, self-reproach, are logical consequences. All these variations are persistent intensifications and differences of the normal connections of ideas and emotions, with their correlated physical reactions; the persistence of morbid emotional reactions indicates deteriorated body states.

In the emotional states of "mania" there is the characteristic exaltation and exhilaration; but in many cases there is depression of feeling of the type shown by anger in its origin from painful states of irritation, and by distressing delusions and aggressiveness. These two prominent types of feeling-tone are associated with corresponding variations of irritability

[28] Cf. Cowles, E. Op. cit. Neurasthenia and its Mental Symptoms, 1891.

marked by its rise from moderate to high degrees of psycho-motor excitation, shown mentally in "flight of ideas," corresponding to the agitation and irritable weaknesses in melancholia,—sometimes more extreme and sometimes reduced and lost. The clinical pictures in some cases may indicate a simple absence of painful irritation, but they certainly show, characteristically, the false euphoria of blunted sensations, as in alcoholic intoxication.

(2) *Intellect.*—(Sensations—perceptions and ideas.) The "thinking process," as it is rather vaguely called, may be definitely conceived to include the ideational reactions of the stream of consciousness, constituted of the association-processes in combination with the inhibitory or exciting control of the will working through attention and apperception; the emotional factor enters into the combination and modifies the "thinking process" with intensifications of interest and motive influences. It is impossible to describe these function-factors separately because they all work together. The character of the ideas—the sensations revived by memory in the association-process, whether depressed in melancholia, or exalted in mania, is in harmony with the emotional tone as it is "lowered" or "exalted." The time element in the processes of the stream of consciousness varies with the rise in irritability and especially with the coincident reduction of inhibition. This, in mania, with the intensification due to irritability, produces "flight of ideas" with quick reactions and superficial associations. The tendency is to increasing weakness, reduction of clearness, incoherence, and final arrest of mental functions in confusion or stupor. With disordered perceptions there are illusions and hallucinations; delusions arise. Maniacal states represent graver degrees of derangement than melancholia, and a lower level of functional reduction, especially of inhibition. The more profound conditions of acute exhaustion (confusional insanity, exhaustion psychoses) occur sharply by themselves from strongly exhausting influences and are varied manifestations of delirium; these may supervene in the severer types of both melancholia and mania.

(3) *Will.*—(Inhibition—attention and apperception.) In the sense that acts of the will are such acts only as cannot be inattentively performed it produces exciting or augmenting effects in the "thinking process," or inhibiting effects; working through attention and apperception its function of control appears in voluntary inhibition, and this has been described in part in connection with the other elementary functions and in the reference to the physiological law of inhibition. Normally inhibition, both physiological and voluntary, stands in mobile equilibrium with the tendency of all conscious and neural excitations to discharge into motor effects, open or concealed within the organism. In the incessant change and succession in the train of ideas in consciousness the attention holds the chosen or attracting idea in the interplay of neural processes and thus inhibits its tendency to pass away, other items being held with it in reasoning, and apperception being a special form of the same controlling influence. This

inhibitory function is a true index of the integrity of vital energy; it is regularly reduced in efficiency with asthenic reduction of the nervous forces. Voluntary inhibition is variably reduced in neurasthenia, persistently in melancholia, and greatly so in mania with loss in delirium.

(4) *Organic Sensations and States.*—(General and kinæsthetic sensations.) The importance has been shown of these function-factors of the "somatic group of senses," in respect to the representations they bring into conscious experiences concerning the inner physical life of the body. In health the sensory and motor reactions of our bodies, and our conscious experiences, are adjusted to contacts with the environment within normal limits; the organic and kinæsthetic senses normally contribute to the general welfare with only salutary interferences, and these being mostly unnoticed we habitually ignore their existence. It is in disordered physical conditions that the abnormal influences arise and interfere with and derange the experiences of the mental life; they are general and vague in character, but are of essential significance though only described as subjective experiences. The phenomena of changes of excitability and loss of function are well-known and variously described; an interference with the functions of any one system will disturb the normal functional equilibrium that must of necessity exist in the action of the whole.[37] The principle of localized variations of irritability, as in the neuroses, applies to all functioning groups of cellular mechanisms; the threshold of excitation may be raised or lowered in any of the sensory, motor, or central and psychical parts of the reflex mechanisms. Upon these changes may be predicated all the phenomena of psycho-sensory and psycho-motor excitation and retardation, conditions that appear in some kind or degree in the whole range of the functional psychoses. These variations may be ascribed to reductions of the nutritional maintenance of the vital energies. Hyperæsthesia and hyperkinesis are the complementary manifestations that betoken fatigue, or equivalent weakness from some cause, of the physiological inhibitory energy; this condition is often associated with anæsthesia of the fatigue-sense in the same case.

It should be noted that the changes of feeling-tone, of motility, and of control do not run parallel to each other; hence the differences of the clinical pictures presented by typical melancholia and mania, and the so-called "mixed cases"; melancholia presents two principal types—emotional depression with excitation and retardation; mania presents emotional exaltation with excitation and sometimes with painful states of consciousness and the acute reductions of function in exhaustion and stupor. There are numerous phases in the unified melancholia and mania as constituting one general group of variations of functional disorders presenting clinical phenomena apparently widely divergent as "clinical types," but falling into harmonious relations when explained consistently with their developmental and genetic character.

[37] Cf. Mott, F. W. The Degeneration of the Neuroses.

2. THE DETERIORATING PSYCHOSES.—These psychoses have an important relation with the *functional psychoses* that should be mentioned here. They are characterized by persistent functional deterioration and tend to dementia; this is consistent with the opposing fact that the vital energies of the life-process sometimes appear to overcome in recovery the interferences with their normal action. It has been said that the functional psychoses tend to recovery; yet the failure to recover in some cases may be consistently referred to constitutional weakness or the loss of vigor in old age. This does not imply that heredity is an essential cause of mental disease; "neuropathic" persons have less endurance against all adverse influences. Among the *deteriorating psychoses* the first place is given to a large group called "dementia præcox"; its general form is not clearly differentiated, nor its special divisions; no common basis is implied in the designations hebephrenia (mental weakness), katatonia (motility disorders), paranoid forms (insistent and imperative conceptions). A single case may change from one "form" to another, and the recognition of some constant characters is required to unify all the "forms"; the common fact of dementia is shown in the deterioration of capacity that may occur in any of the functional mental elements, varied in different cases; this implies structural changes. The character of the failure is revealed in the quiescent states after the subsidence of active symptoms. The most common fact is the deep-seated deterioration of the emotional nature; hence the characteristic indifference and apathy which favors the development of habit automatisms, etc. Concerning this large group of deteriorating psychoses, regarded as above stated, and including also the few other "disease-forms" at present accepted as such, some general conclusions now appear with respect to the functional psychoses.

The unification of the functional psychoses can only be indicated here with respect to the explanations and conclusions reached during some years of teaching the principle that each of the groups conveniently designated neurasthenia, melancholia, mania, etc., simply includes variations in combinations of different degrees of functional disorder of the same physical and mental elements. The essential unity of melancholia and mania was recognized by Griesinger and others with differing explanations; modern physiology and psychology broaden and simplify the whole subject with better explanations of general principles.

In recent psychiatry there is an evident tendency to the unification of the psychoses.

A significant contribution has been made by Dana;[28] in his

[28] Dana, C. L. The Partial Passing of Neurasthenia, Boston Med. and Surg. Jour., Vol. CL., 1904.

large neurological experience he has seen much to favor the idea that most neurasthenias are mental cases, or non-insane psychoses; the term phrenasthenia is used for a special group of neurasthenic or degenerative psychoses including mainly those described by Janet as psychasthenia; it is said that an innate constitutional weakness underlies all the chief non-accidental functional insanities. There is much reason for a simplifying psychiatrical conception, complementary to Dana's view, that not only most, but all functional mental cases are subjects of asthenic reduction of functional efficiency and are neurasthenic. The tendency is notable in the remarkable studies of Janet in which he reaches the conclusion by psychological analysis that many of the apparently diverse psychoneuroses may be unified under the one principle of psychasthenia; this implies a general and special insufficiency in all the phenomena and is at the same time neurasthenia; these affections represent regular degrees of lowering of functional efficiency.

The genetic method leads to a comprehensive view of all the psychoneuroses. Considered biologically and physiologically neurasthenia, phrenasthenia, psychasthenia and all the functional psychoses are modifications of functional characters. Whether these modifications were acquired newly by the individual himself, or by his ancestor and thereafter transmitted as though they were inherent variations, the problem is essentially the same. However perverted, distorted and anomalous the functional phenomena of vital activity may be, they must be traced back to the first interferences with the physiological elements to find their explanations in their genesis. We may assume that all normal adult individuals are subject to certain acquirable functional modifications—numerous and complex, thus forming the symptom-groups called neurasthenia, melancholia and mania, for example; all abnormal persons are subject not only to the same changes, but to something more and something different, and these additions may be simply special variations of intensity, or degrees of impairment, or of differences pointing to other than functional explanations. A general principle in mental pathology may be derived from these considerations. Whatever the form of a deteriorating psychosis it has its own pathological characters; but superimposed upon these symptom-factors, and relatively superficial, neurasthenic manifestations commonly appear, and there may be epi-

sodes more or less transitory, of manifestations of the functional psychoses. This occurs notably in the early stages of dementia præcox and manifests the practical concurrence of two diseases, viz.: the permanent deteriorating psychosis and the transitory phases (melancholic, maniacal, and paranoid) of the functional psychosis. This principle accounts also for the fact of there being maniacal as well as melancholic types, and the "paranoid conditions," in the "involution psychoses"; this principle is already well recognized in respect to the neurasthenic melancholic, and maniacal modes of onset of paresis; and to the same types of functional disorder, and tendency to obsessing suspicious and delusional ideas, in senile insanity in which active symptoms may measurably or wholly disappear. All the psychoses called functional for purposes of classification, and being nearest to normal, constitute the main division of the psychoses (considered as mental disorders); all the psychoses called deteriorating and being exceptions to the others, constitute the minor division. In these the fact that in some particulars the reductions of functional efficiency remain permanently deteriorating constitutes dementia, which implies some form of structural change, though none strictly characteristic has yet been found. The pathological principle here suggested leads to a practical method of analysis of the symptom-factors of all possible forms of deteriorating psychoses. The first step is the distinction of the purely functional modifications referable to physiological sources; these relate to variations of the fundamental irritability as explanatory of changes of motility and of the sensibilities and emotional tone, all being comprehended broadly in relation with the "somatic group of senses;" closely kindred with these are the reductions of function of the processes of association, memory, attention, inhibition, etc. Holding apart these phenomena of the main division of psychoses as being included in the functional conception of their pathology, and as explainable through their genetic and developmental character, there remain, of the symptom-factors of a deteriorating psychosis, those that point to the causes of the special deterioration. This helps to define the problem of research for anatomical explanations. It should not escape observation that when there is "innate constitutional weakness" in cases belonging to the main group of functional psychoses, special modifications may be noted

in the symptom-factors, especially of the attention and inhibition element whose reduction is the most constant and characteristic fact of constitutional insufficiency. It is in these conditions that the law of habit has its most potent and perpetuating influence.

The functional psychoses, including those answering to the definition of "a typical form of insanity," present some points of special interest when analyzed in accordance with the method and principles examined in the foregoing pages. Reference has been made to Griesinger's descriptive definitions of melancholia as "states of mental depression" and mania as "states of mental exaltation." During more than half a century these designations have held their places in psychiatry; the search for more satisfactory statements has not been altogether successful. The difference of the emotional tone is the criterion but it is not a wholly true one. The depression in melancholia is consistent because the "somatic senses" retain enough of normal function to report truly to consciousness the fact of ill-being of the body; but in mania the exaltation is not constant, the physical correlatives of the feeling-tone are more disordered by reductions and losses yielding more irritating excitations and in many cases a fictitious sense of well-being. But the "somatic senses" produce other equally important symptom-factors in the changes of motility; in melancholia with impaired inhibition there are both psycho-sensory and motor excitations and retardations,—in mania, with graver changes and losses of inhibition, motility is more disordered. The word melancholia, by long usage and observation of the facts, really stands correctly in the recognition of its meaning all of its well-known symptom-factors other than emotional depression; the word mania meaning madness, stands equally well for both its emotional variations and its motor excitement. In mania there is graver derangement of the "thinking process" and its "states" are at a lower level of reduction than melancholia. These references though meagre serve to show that the terms melancholia and mania are well understood as including a great variety of states of varied combinations and proportions of their symptom-factors; besides the many typical cases of each group there are found to be very many "mixed cases." There are many phases, and a two-phase conception to represent the original groups of "states" does not hold good; for example, taking out the emotional de-

pression from one group, and the motor excitation from the other, in order to designate the distinction of the phases and to characterize the compound "disease-form," leads to the exclusion from it of the very essential psycho-motor excitation often associated with the depression in the former group, and to overlooking the significance of the emotional changes in the latter. An adequate study of the "somatic group of senses," as suggested here should help to clarify the whole matter. Compound designations for the unified symptom groups yet suggested do not satisfy the requirements so well as their simple combination in "melancholia—mania." The psychoses cannot be limited to the insanities; we must speak of the "non-insane psychoses," and in psychology the word refers to normal function. It might be said that the first step in the classification of mental diseases discovers two great divisions: *functional insanity* and *deteriorating insanity*.

This discussion of the thesis that the problem of psychiatry is in the functional psychoses, required first an examination of the terms and conditions of the problem. This necessitated an inquiry concerning certain principles and conclusions of the biological and medical sciences that have had a controlling influence in psychiatry. Morphological conceptions being dominant in medicine, it was found also that a number of terms and phrases are so commonly employed in medicine that their use has been compelled in psychiatry, although they embody conceptions and theories inconsistent with its dependence upon functional conceptions of mental pathology. The inquiry having led to the conclusion that the physiology of the life-process is the first recourse for psychiatry in the search for explaining principles it becomes necessary to be emancipated from all preconceptions. The functional conceptions, being framed, and applied consistently with the facts of physiology and psychology, lead to a recognition of the developmental and genetic character of the functional modifications, and indicate their sources in physiological facts. A clearer idea is gained of the relation of conscious experiences to body states, and of the influence of the "somatic group senses" in the relations of the conditions of the whole organism to the mental states. The dependence of all functional phenomena upon the processes of nutrition and metabolism for the maintenance of the nervous and mental mechanisms, points to the

fundamental importance of pathological physiology and chemistry. Physiological and psychological experiment in the immediate clinical examination of functional modifications shown in symptoms helps to determine the physiological sources of the contributing disorders in the whole body as well as the central nervous system.

The psychiatrist inclined to inquiry finds, in the pursuance of his practical work, that as a physician he must treat the whole body, and that a functional conception of mental diseases leads to treatment. Psychiatry belongs to general medicine and mental disease like bodily disease is not an entity nor an agency but the result of normal function acting under abnormal conditions; the problem requires the investigation of the developmental and genetic character of functional modifications.

THE EFFECTS OF EXERCISE UPON THE RETARDATION IN CONDITIONS OF DEPRESSION.

By SHEPHERD IVORY FRANZ, Ph. D., and G. V. HAMILTON, M. D.

(From the Laboratory of Pathological Physiology of the McLean Hospital, Waverley, Mass.)

The present paper deals with a small part of a research upon the physiological and psychological conditions in cases of retardation.[1] An attempt has been made to determine how much, if any, betterment this class of patients undergoes with exercise, both active and passive. The condition of retardation, and of the "feeling of inadequacy," which is very closely allied to retardation, we believe is one of lowered irritability, and any method that will help to bring the general irritability back to a more normal condition will be of benefit to such patients. Two clinical observations point strongly to the stimulating effect of exercise in this class of the insane, but such evidence has probably not been given sufficient value. The more noticeable of the two facts is that improvement in the mental condition of this class of patients is first noticed in the afternoon. After the activity of the morning the irritability seems to be increased to such an extent that the patient moves and answers more quickly and feels more nearly normal. The same stimulus seems to have a much greater effect in the afternoon than in the morning. The second fact is that after a restless night the retardation is often less marked and a condition is noticeable similar to the afternoon improvement. The loss of sleep, or, it may be, the restlessness of the night tends to "key up" the patient and the reactions are not so slow. In addition it may be mentioned that Hoch[2] has found that the "warming-up" effect in a case with the "feeling of inadequacy" is much greater than normal. On the separate days he found an

[1] The part here published is complete in itself but is now given mainly because of its suggestiveness and because it may help to emphasize the fruitfulness and importance of the application of psychological and physiological methods in psychiatry.

[2] On certain studies with the ergograph. Journal of Nervous and Mental Diseases, (1901), XXVIII, 620-628.

"unusual rise of pull number from curve to curve."[3] The lack of practice effect in Hoch's case and his conclusions will be considered later.

Two series of experiments have been made. The first series was with only one patient. In this series careful tests were made of his pressure and pain sensibility, of the rapidity and accuracy of movement, and the speed of reading. These experiments were made on days when he pursued his normal routine and on days when he had been subjected for five minutes to mechanical vibration along the extent of the spine. The second series was made with two retarded patients. The tests of this series included experiments upon simple and choice reaction times, upon the rapidity of movement, and upon the time of the more complex processes of reading and discrimination. These tests were made in the early morning at 8.30 or 9.00 and again two and a half hours later at 11.00 or 11.30. On alternate mornings exercise or rest was taken by the patient. On the resting days the subject was kept very quiet, lying down if possible, so that no extra muscular work was done, and on the exercised days for two hours between the two series of experiments the patient was taken for a long walk or on one day the patient was permitted to bowl during the interval.

The subjects for the experiment were two men: S., a merchant, is 44 years old. This is his third attack of depression. His first attack was at 20, and lasted five months. His second attack was at 33 and continued five months. The present attack began in March and now is practically over; duration six months. On entrance the patient was greatly retarded. He explained that he felt weak and could not put his mind on things. He would not answer questions, reacted little to pin pricks, and when asked to show his tongue made several unsuccessful attempts to do so. The other subject, Ev., has been depressed and retarded for nearly two years. This is his seventh attack of depression.[4]

[3] In a brief report of the continuation of this work Hoch reports similar results in more pronounced conditions of retardation in melancholia. Psychol. Bulletin, (1904), I, 255.

[4] This patient was used in a previous part of the research, and some of his results have already been published. Franz: Anomalous reaction times in a case of manic-depressive depression. Psychological Bulletin, 1905, II, 225-232.

SERIES I.—In the first series of experiments S. alone was used, and an effort was made to determine what effects followed the passive exercise and stimulation given by a mechanical vibrator. The subject was vibrated on alternate week days at 9 a. m. with a mechanical vibrator consisting of a vertical rod to which was attached a hard rubber ball 1¾ inches in diameter. This was pressed lightly against the skin over the points of exit of the nerve trunks, both to right and to left along the extent of the spine. Each point was vibrated five seconds.

On the days when the patient was not vibrated the tests were made at 9. a. m., and on the vibrated days the tests followed immediately the mechanical vibration. The first experiments made each day were the determinations of the touch and pain thresholds. Then followed an experiment on the rapidity of movement, then the test on the accuracy of movement, next a test of the speed of reading, and finally a second test on the rapidity of movement.

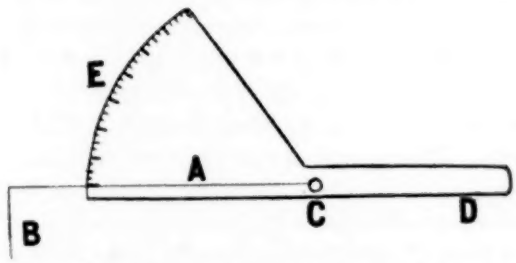

FIG. I.—The figure is about ¼ size of instrument.

Pressure sense threshold.—The touch threshold was determined by means of an instrument similar to that used by Bloch. The accompanying illustration will give an idea of the apparatus. To a piece of wood was attached a spring steel wire *A* which was bent at a right angle *B*. The long part of this wire, *A*, measured six inches. The area of cross-section of the wire was about .4 sq. mm. A scale *E* attached to the instrument permitted the experimenter to determine the threshold. The instrument measured pressures as high as 1¼ gms. The right-angled piece of the wire was pressed against the patient's skin, care being taken to keep it vertical all the time, and when the subject reported that the

pressure was perceived, the reading was taken from the scale and recorded. The following points on the skin were selected for the determination of the touch threshold: On the back 3 in. external to and level with the spinous processes of the 12th dorsal, of the 2d and the 4th lumbar vertebræ, and of the 4th sacral segment on either side, making in all 8 points. On the palm of each hand 19 points were selected as follows: the tips of the thumb and fingers, points midway between each of the phalangeal joints, and directly over each of the metacarpo-phalangeal joints. Care was taken not to select any calloused spots. Two determinations of the threshold were made on each of these points each day. A sufficient interval was permitted to elapse between the two tests to avoid any possible summation effect of the stimuli. Throughout these, as well as throughout all the other experiments, the patient co-operated very well. There was no indifference or unwillingness on his part during the progress of the series except on July 14th; the results on this day will be considered later. All the experiments on the back or on the palms for one day are grouped and averaged. The figures in the following tables are, therefore, to be understood as the daily averages of 76 experiments on the palms or of 16 experiments on the back.

Pain threshold.—The determination of the pain thresholds were made with an instrument similar to the well-known Cattell algometer, but the area of stimulation was approximately 2.5 sq. mm. The measurements of pain threshold were made on the same points used for the determination of the pressure threshold. The experiments on pain, however, were made after the touch experiments, and only one determination was made each day. The total number of observations each day was 38 on the palms of the hands, and 8 on the back. As in the case of the pressure threshold, all the measurements for the hands were grouped and averaged for each day, and a similar procedure was followed for the 8 daily pain determinations on the back.

Rapidity of movement.—The rapidity of movement was rather roughly tested by having the subject tap on a sheet of paper 8 by 10 inches with a pencil for 30 seconds. The subject was instructed to tap with the pencil as rapidly as possible from the time the signal for starting was given until told to stop. The total number of taps made in 30 seconds was counted and there-

from we calculated the average time for making one tap. The figures in the tables refer to this average time. Two experiments were made each day, and both of the averages are given in the accompanying tables.

The accuracy of movement.—A sheet of paper 8 by 10 inches was put before the subject and he was instructed to draw thereon a line. This line was then covered up and he was told to reproduce it. This was kept up until he had made 20 reproductions, each line being intended equal to the preceding one which he had drawn. The interval between drawing the lines was about 3 seconds. The length of line varied each day, but tended to be approximately 110 mm. long. The constant error in the reproduction of the lines was determined, *i. e.*, what tendency the patient had towards making his reproductions longer or shorter than the line which he was to reproduce. The average error was also calculated by taking the differences between the consecutive lines and averaging these, but disregarding any special tendency towards an increase or a decrease in his reproduction. Both the average constant error and the average error are, therefore, averages of twenty experiments each day.

Speed of reading.—During the last thirteen days of the series one experiment was made each day on the rapidity of reading 100 figures. The time given in the tables for these experiments is the total time for the 100 figures.

In the accompanying table will be found the results of all the experiments of this series for twenty-six days.[1] It will be noted that in the course of the experiments there was a gradual and steady improvement in the rapidity of movement, in the speed of reading, in the threshold for pressure, both on the palms and back, and for the pain threshold in both regions.

Contrary to the observations which have been made by other people, it will be noticed that the touch threshold in this patient

[1] On September 23, after the MSS. was sent to the JOURNAL, other experiments were made with S. Two experiments on tapping gave average times of .185 and .171 sec. respectively. Touch threshold for palms was .021 and for back .065 gms. Pain threshold for palms 440 and for back 456 gms. All these figures show a decided improvement in the patient. The day these experiments were made the patient was discharged "recovered." These results, therefore, may be considered *normal* for S.

TABLE I.

DAILY RESULTS AND AVERAGES. SUBJECT, S.

Dates.	Tapping time in sec.	Reading 100 figures sec.	Accuracy of Movement in mm.		Pressure Threshold in grams.		Pain Threshold in grams.	
			Constant Error.	Average Error.	Palms.	Back.	Palms.	Back.
July 6	.263	....	+0.95	3.75	....	....	....	....
7*	.227	....	+1.2	2.95	.190	....	909	....
8	.231 .252	....	+0.6	5.93	.257	....	931	....
10*	.205 .210	....	+0.38	7.40	.185	.181	922	822
11	.217 .216	....	−0.67	3.10	.231	.657	998	1020
12*	.203 .204	....	+1.7	5.35	.277	.395	984	988
	216 .231	....	+0.5	4.55	.233	.352	978	921
14*[1]	.256 .248	....	+0.7	4.50	.334	.800	1012	1020
15	.226 .208	....	+1.2	4.13	.217	.274	965	1020
17*	.221 .207	....	+0.95	3.35	.147	.285	986	1010
18[2]	.205 .217	....	+0.55	4.80	.096	.151	802	886
19*	.197 .194	....	+0.5	5.68	.116	.276	811	855
20	.196 .208	45	+1.0	6.70	.137	.246	900	947
21*	.203 .199	43	+1.18	5.28	.118	.311	812	883
Aug. 8	.221 .207	42	+0.1	3.5	.088	.151	696	702
9*	.195 .194	40	+1.0	5.2	.085	.114	652	651
10[3]	.205 .194	42	+0.78	4.1	.060	.218	596	593
11*	.196 .192	41	+0.03	4.5	.075	.178	609	740
12	.195 .208	36	+0.4	4.5	.046	.155	588	644
14*	.192 .186	36	+0.25	4.7	.056	.125	636	676
15	.199 .190	35	+0.8	5.7	.078	.169	670	627
16*	.183 .182	35	+1.1	5.0	.064	.088	680	634
17	.200 .188	35	+1.15	5.0	.068	.105	631	600
18*	.183 .192	35	+0.85	6.3	.056	.137	602	577
19	.192 .211	36	+0.4	6.5	.043	.114	618	574
30	.192 .194[4]	....	....	....	.039	.098	552	555

* The dates which are starred are days on which the patient was vibrated.

[1] Patient was very sleepy during the course of the experiments and did not answer well.

[2] Experiments made in the afternoon.

[3] The patient had very little sleep during the previous night.

[4] These experiments were made August 26 after extra practice of two similar experiments each day for one week. See Table III.

at the beginning of the series, as compared with what it was found to be at the end, is very high and the pressure sense seems to be considerably dulled.[1] It is true that during the progress of the experiments the patient was gradually getting better, but precautions were taken at all times to determine whether or not the high determinations which were made were due to a dulling of the sensibility or to his slowness in responding. Often during the course of the experiments on any day a number of *Fehler Versuche* were made by holding the instrument either above the skin so that no touch was given or by pressing it down to a point where it seemed likely the stimulus would not be perceived and keeping it there for a few seconds. Both of these methods gave usually negative results. Occasionally there was what might be termed a premature reaction, *i. e.*, a response when he was not being stimulated, but with the other method response was not obtained until the pressure had been increased. It is, however, interesting to note that there is a decided improvement in the pressure sense. Whether or not this be due to an actual improvement in the pressure sense itself or be due to a lessening of the retardation cannot be definitely decided. We believe that the improvement is an actual sensory improvement (using in our present state of ignorance the term sensory to include the whole sensory apparatus, end organ to the brain). The results obtained when the second precautionary method was used indicate this, it seems to us, very clearly. Furthermore, we shall see in a comparison of the results on the vibrated and non-vibrated days (Table II) that on the vibrated days the improvement is much more marked. This would indicate that the extra stimulation which was given to the back and which probably had its effect

[1] Using a similar instrument and method, Griffing (On sensations from pressure and impact. Psychological Review Monograph Supplement, 1895, I, 1, p. 88.) found on two normal subjects an average pressure threshold of 2.3 gms. over an area of .9 sq. cm. If the pressure necessary to be perceived varies directly with the area of stimulation, we should expect a pressure of .012 gms. to be perceived when the area of the stimulating instrument is .4 sq. mm. It should be mentioned that other investigators found relatively higher thresholds than did Griffing, and still others found much lower. See table in Sherrington's article on Cutaneous Sensations in Schäfer's Text Book of Physiology, Vol. II, p. 927, and table in Landois' Physiology (trans. by Brubaker), 1904, p. 928.

upon the spinal cord helped to increase the irritability of some part of the nervous mechanism.

Similar results are found for pain threshold. Usually the statement is made that the pain appreciation in this class of patients is not diminished. This conclusion, however, has been drawn entirely from a few rough clinical tests such as pricking with a pin, although often it is admitted that these patients react very little to pin pricks. We have been unable to find any accurate determinations of the pain threshold in this class of patients to substantiate the general opinion. A reference to the table will show that the threshold at the beginning of the experiment was over 50 per cent higher than it was at the end of the series, and, moreover, it is particularly noticeable that the results of the first two weeks, July 10 to 21, are very much higher than the results obtained from August 8 to 19 after the patient had had a period of two weeks without experiments. If the lowered threshold was due to practice we should expect that a part of the practice effect would have disappeared during the two weeks' interval.

Similar precautions were taken in these experiments as were done in the touch threshold series, but even when the instrument was kept at a point of considerable pressure, the subject did not respond, although sufficient time was given for a retarded answer.[1]

The experiments on the accuracy of movement show practically nothing. The results are included here for their negative value, because they indicate that there is no disturbance of the "movement" sensations. There is no constant increase or de-

[1] This would indicate that at such times the threshold was even higher than we had determined since Griffing found that the pain threshold was a function of the time of stimulation as well as of the area and intensity. Op. cit., p. 80-83. Griffing found in 40 persons an average of 5100 grams for pain threshold when the area was 0.9 sq. cm. The results at the beginning of S's series are, therefore, much higher than the normal average and those at the end of the series, while they approach this average, are somewhat higher. It should be further noted that Griffing found (Op. cit., p. 53, note) that in some pain measurements "a number of experiments had been made on the hand before, and it seemed to have become less sensitive by about 2 K. than when it was first tested." This conclusion would indicate that any "practice effect" for pain threshold would be towards an increase rather than a decrease of the threshold.

crease in the average error from the first to the last of the series, nor does the constant error show any special tendency. If there was any disturbance of motor sensation it should show itself in an increase of the average error, but throughout the series the proportion of the daily average error to the total length of lines which were drawn is no greater than normal.

There is an increase in rapidity in tapping time from the first to the last weeks of the series, coincident with the gradual recovery of the patient. Part of this increase in speed must be considered as due to a practice effect, particularly during the first few days, July 6, 7, and 8. For reading 100 figures there is a considerable decrease in time, but here also some of the increased rapidity is undoubtedly due to practice.

In Table I notes have been made that the results obtained on July 14 and 18, and on August 10, are not strictly comparable with the results on the preceding and succeeding days. On July 14 the patient did not co-operate well. He seemed very sleepy, often indifferent, and sometimes unwilling to have the experiments made. Several times on that day the subject said that he felt the touch stimulus some time before he responded. In comparison with July 13 and 15, the results of this day show striking deviations in almost every kind of experiment.

Unfortunately, it was impossible to make the usual experiments on the morning of July 18, and the patient was tested late in the afternoon. So far as a general comparison is concerned the results cannot be used with any of the morning experiments, but they give a more exact measure to the commonly observed condition of afternoon improvement.

The effect of a restless night is indicated in the results of August 10. The averages, except for touch threshold on the hands and the pain threshold of both hands and back, do not indicate the great difference in the patient's feeling of well or ill-being. During the previous night the subject had slept very little, and in the morning became quite voluble, easy in manner, active, although subjectively he felt rather depressed. The condition of the subject or of the experimental conditions of these three days, we judge, are not sufficiently similar to warrant their grouping and averaging with the results on other days. In the

succeeding comparison of the daily results, therefore, these three days have been disregarded.

The patient, it has been mentioned, was vibrated on alternate days. The results both for the vibrated days and those for the non-vibrated days are given in Table I, but we have combined the results to determine any effect succeeding the mechanical stimulation.

The average time of tapping on the non-vibrated days (omitting July 18 and August 10) is found to be .212 sec. Should the first day be discarded also because of the patient's unfamiliarity with the methods, etc., the average is .211 sec. On the vibrated days (omitting July 14) the tapping time averages .199 sec.

The average results for the time of reading on the vibrated and non-vibrated days do not show any difference in time if the result of August 10 is omitted. The time measurements were made, however, roughly with the second hand of an ordinary watch and the error of recording from such an instrument is probably much greater than any time differences in the process of reading. A more accurate method might indicate some differences, but at present we can report only negative results.

In the experiments upon the accuracy of movement it has been mentioned above, no improvement was noted throughout the series. The comparison of the results on the days when the subject was vibrated with those on the non-vibrated days (omitting, of course, results of July 14 and 18 and August 10) give, respectively, average errors of 5.02 mm. and 4.79 mm. and constant errors of +0.83 mm. and +0.58 mm. The average relative amounts of the average errors compared to the total lengths of line were equal on the vibrated and non-vibrated days. It is interesting to note that the constant error averages greater on the vibrated days, there is a greater tendency to make each line somewhat longer than the preceding one. In experiments on normal subjects it has been found that when an individual is feeling particularly well, and there is a general feeling of *bien aise*, there is a tendency to a greater movement, and, as Münsterberg has shown, of an extensor type. On the days when the subject did not feel so well there was less tendency to overestimate movement and, in fact, a tendency towards a movement of a flexor type.

How much this factor is present in S.'s results we cannot say. It would be interesting to repeat these experiments if the patient should become "set up" or even maniacal. The results at present do not indicate any special change in one direction or other. It has been noted, however, that at no time during the series could the results be interpreted to indicate a lowering or a defect of the "motor" sensibility.

In Table II we find much more than an indication of the stimulating effect of the mechanical vibration. Both the touch and the pain threshold are lowered on the palms and on the back on

TABLE II.

AVERAGES OF PRESSURE AND PAIN THRESHOLDS DETERMINATIONS. SUBJECT S.

Results of experiments on July 14 and 18 and August 10 have been omitted. The numbers of days are given in parentheses. 76 pressure and 38 pain determinations on the hands, and 16 pressure and 8 pain determinations on the back each day.

	Pressure Threshold in grams.		Pain Threshold in grams.	
	Palms.	Back.	Palms.	Back.
Vibrated Days	.1245 (11)	.209 (10)	782.1 (11)	783.6 (10)
Non-Vibrated Days	.1398 (10)	.247 (9)	797.5 (10)	783.9 (9)

the vibrated days in comparison with the results on the non-vibrated days. For the touch threshold the improvement on the palms is over ten per cent and on the back over fifteen per cent. The improvement in the pain threshold is not so marked either on palms or back, and for the back the difference is too slight to be significant.

Taking the results of all the tests it is quite evident that the vibratory exercise has caused some change in the body, so that on these days the patient moved more quickly and his touch and pain feelings were not so dulled. The effect of the vibration is very largely stimulating to the tissues in the immediate neighborhood of the area vibrated and probably it has also considerable effect upon the structures adjacent. In this case it is probable

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that the spinal cord and the spinal nerves were affected, and this would very naturally increase the irritability of these parts. With an increased irritability of the nerve elements we would get a decrease in the stimulation thresholds.

SERIES II.—In the second series of experiments both S. and Ev. were used. On S. the tests were made each day for a week, and on Ev. for four days. The experiments included (*a*) time of simple and choice reactions, (*b*) the rapidity of movement, (*c*) the time of reading, (*d*) the time of discrimination and movement.

Reaction times.—In these experiments the time for moving a finger of the right hand when a sound was heard gave the time for the simple reactions. For the choice reactions, the same finger reacted to the same sound, and a finger of the left hand to another, but lower, sound. The choice reaction times for the right hand have been the only ones considered, since they are strictly comparable to the simple reaction times. The time was measured by a Hipp chronoscope, and the results which are reported are given in thousandths of a second. With one exception (noted in the table), twenty-five of each kind of reaction were taken at each sitting. The figures in the tables are thousandths of a second.

Rapidity of movement.—The simple reaction time gives us data for the rapidity of movement, but in addition two other tests were made each day. One of these was the tapping experiment described in the previous series (p. 242). The other was the time for distributing some cards. In this test the subject was given a pack of 100 colored cards, each three inches square, which he was instructed to place in a stack, one at a time, at his maximum speed. The calculation of the tapping records was done in the same manner as for Series I. The total time for the distribution of the 100 cards are given in Tables III and IV. The average time for handling and stacking one card can easily be calculated by dividing the total time by 100.

Time of reading.—Pages of an unfamiliar book were given to the subjects with instructions to read as rapidly as possible, disregarding the sense, but reading every word. The matter selected was as free as possible from all difficult words, and persons of ordinary education could read everything understandingly, if it were required. The total time for reading such a page divided

by the number of words gave us the average time for reading one word. The figures in the tables refer to this result.

Time of discrimination and movement.—Here also two different kinds of experiments were made. The first of these was the distribution and discrimination of 100 colored cards. Ten cards, each of a different color, were arranged in a semicircle upon the table and the subject was given the well-shuffled pack of 100 cards,

TABLE III.

THE TIME OF CERTAIN MENTAL PROCESSES, AS INFLUENCED BY MUSCULAR EXERCISE. SUBJECT, S.

Exercise was taken on August 21, 23 and 25.

Day and Time.		Average simple reaction time. 25 experiments each session.	Average choice reaction time. 25 experiments each session.	Average tapping time. One tap.	Distributing 100 cards. One stack.	Discriminating and distributing 100 cards. Ten stacks.	Time for reading one word.	Marking 100 e's.	
								Total time.	Number of e's omitted.
				sec.	sec.	sec.	sec.	sec.	
A. 21, exerc.	8.30	325.6 (20)	450.9 (10)	.203	82	155	.372	170	15
	11.00	269.3	287.4	.176	56	146	.344	136	13
A. 22, rest.	8.30	220.6	274.3	.188	71	159	.358	143	10
	11.00	210.7	270.6	.191	57	135	.351	152	16
A. 23, exerc.	8.30	230.0	277.6	.196	67	140	.358	148	9
	11.00	220.7	256.7	.203	63	129	.341	162	13
A. 24, rest.	8.30	224.1	278.3	.176	64	135	.335	150	
	11.00	182.3	248.9	.182	67	121	.335	166	
A. 25, exerc.	8.30	198.1	232.6	.190	75	141	.348	158	6
	11.00	221.2	214.2	.195	68	128	.342	159	11
A. 26, rest.	8.30	218.4	237.3	.192	79	119	.340	136	10
	11.00	187.4	235.3	.194	80	118	.349	152	4

consisting of ten cards of each color represented on the table. He was told to distribute the cards according to the color as rapidly as possible. By subtracting the time necessary for placing the 100 cards in one stack we obtain the time necessary for discrimination and for association of the color with a certain position on the table. The second experiment of this general character was the determination of the time necessary to cross out 100 small *e*'s in a solid paragraph of printed matter. About a third of a

page was given to the subject with instructions to mark all the *e*'s as rapidly as possible. There were about 900 other letters in the paragraph. Each *e* missed by the subject was counted as an error in calculating the results.

The results of these experiments on S. are given in Table III and those on Ev. in Table IV.

It is evident that there is a gradual but not a regular day-to-day improvement in the result of S.'s experiments, just as was

TABLE IV.

TIME OF CERTAIN MENTAL PROCESSES, AS INFLUENCED BY MUSCULAR EXERCISE. SUBJECT EV.

Exercise was taken August 22 and 24.

Day and Time.		Average simple reaction. 25 experiments each session.	Average choice reaction. 25 experiments each session.	Average tapping time. One tap.	Distributing 100 cards. One pile.	Discriminating and distributing 100 cards. Ten piles.	Time for reading one word.	Marking 100 *e*'s.	
								Total time.	Number of *e*'s omitted.
				sec.	sec.	sec.	sec.	sec.	
A. 21, rest.	9.00	292.2	378.8	.219	143	322	.361	164	10
	11.30	246.4	401.3	.233	161	394	.350	182	27
A. 22, exerc.	9.00	273.7	335.0	.240	118	339	.363	187	4
	11.30	236.5	367.8	.250	124	320	.362	177	22
A. 23, rest.	9.00	246.4	369.8	.248	188	349	.388	210	9
	11.30	253.9	403.7	.246	171	317	.349	175	14
A. 24, exerc.	9.00	264.4	353.4	.242	182	325	.375	171	16
	11.30	293.8	405.6	.288	130	339	.365	168	21

noted in Series I. When the results are grouped according to the effects of periods of exercise and of rest, some interesting facts are found. For S. there is a greater absolute lessening of the time for most of the experiments after the two hours' exercise, and with the exception of the simple reaction-time and of the time of discrimination and distribution of 100 cards there is a greater relative improvement.

The relative amounts of the average time necessary for the different experiments after the periods of exercise and rest as com-

pared with the average time before the exercise and rest are respectively as follows:

Simple reaction time	94.4%	and	87.6%
Choice reaction time	78.9%	"	95.9%
Tapping time	97.4%	"	102.0%
Distributing 100 cards	83.4%	"	95.2%
Discriminating and distributing 100 cards	92.4%	"	90.6%
Reading one word	88.9%	"	100.2%
Discriminating and marking 100 *e's*	96.0%	"	109.6%

After the exercise the subject reported much less depression of feeling although he said he was quite tired. Clinically, it was observed that his movements were much more free, and that he talked more easily and without any hesitancy. He took considerable interest and made many inquiries regarding the experiments. On the resting days this "freedom" was not so noticeable.

The anomalous reaction-times which were reported[1] in some earlier experiments on Ev. have also been found on August 25 with S. This would indicate that the condition which has previously been described at some length is more or less characteristic in this class of patients under certain conditions, as yet unknown.

After the exercise taken by Ev. on August 22 and 24, the patient complained that he was greatly fatigued, and not feeling so well as he had earlier in the morning. The comparison of results on the "resting" and "walking" days shows that there is less improvement when exercise was taken. Ev., it will be remembered, is 67 years old, and for two years has been very quiet, moving about little, and being in rather poor "condition" (to use the language of athletics). For such an elderly man the amount of exercise given him was sufficient to bring about a state of fatigue and to introduce the fatigue effect into the results after this exercise.

Various experiments have shown that exercise in moderate amounts is followed by an increase in efficiency and rapidity of mental work, and that fatiguing bodily work is succeeded by a decrease in quantity, quality, and rapidity of mental processes.

[1] Franz: Op. cit.

The two hours' exercise was sufficiently stimulating to S. who, previous to the experiments, had been accustomed to walk for a considerable distance each day, but the same amount of bodily work was fatiguing to Ev. For a period of two years, Ev. had not taken so much exercise in a week or more as he did on each of the exercise days of the experiment.

At present we are able to conclude from the foregoing results, although they are few in number, that moderate active exercises have a beneficial effect in the condition of retardation. Hoch's conclusion [9] that the practice effect is not carried over to the next day does not apply to the kinds of experiments which we have carried on. A glance at Tables III and IV of this article will show a gradual day-to-day increase in rapidity, and the earlier experiments on the reaction-times of Ev.[10] show a similar improvement. We cannot agree, therefore, with Hoch in considering the retardation largely a difficulty in initiating a movement.

SUMMARY.—The results of these studies may be summed up as follows:

1. The thresholds of pain and pressure appreciation are higher than normal in a case of retardation.

2. There is a daily improvement in the pressure and pain sensibility coincident with the lessening of the retardation and the depression.

3. The accuracy of movement is not affected by depression and retardation.

4. The speed of movement is lessened in the retarded condition, but it is gradually increased during the period of recovery.

5. Mechanical vibration increases the rapidity of movement, and lowers the pain and the pressure thresholds.

6. The speed of mental processes is increased with improvement in the mental condition of retardation.

7. After moderate exercise there is more improvement than after a similar resting period.

CONCLUSIONS.—While the experiments with which we have attempted to determine the effects of active and passive exercise in cases of depression with retardation were made upon only one

[9] Op. cit.
[10] Franz: Op. cit.

patient in Series I and upon two patients in Series II, we feel that the results obtained are of some practical significance with reference to suggestions for treatment.

Owing to the necessary inaccuracy of purely clinical observation, and the misleading statements of patients who have a morbid aversion for any kind of effort, it seems trite to say that more accurate methods should be employed for the determination of the effects of the various methods of treatment. Some alienists advocate a "rest cure" for their patients, while others follow a régime which includes a varying amount of passive and active exercise. In neither case is the value of the treatment demonstrable by the present clinical methods. Some patients improve rapidly and others slowly, so that one never knows whether to attribute the rate of recovery to the natural resistance and the natural recuperative powers of the individual or to the effects of the treatment. It is obvious that the patient is incapable of deciding what is best for him, and equally obvious that the clinician must often depend upon the unreliable data gained by the ordinary clinical tests. The more accurate methods available in the laboratory are, therefore, of considerable importance in that they offer more tangible evidence of the values of the various curative methods. Moreover, it reassures the patient in that he believes something is being done for him. In the experiments just described, S., for example, spoke of their beneficial effect and found much comfort in an assurance of his improvement, which he knew to be backed up by data obtained in the laboratory. In a more extended series of experiments made by one of us, several other patients reported their belief in the benefit of the tests to them.

The results obtained from Ev. and from S. furnish examples of the practical nature of the laboratory methods. While Ev. is an elderly man, we felt that the two hours' walk intervening between his series of experiments might not be excessive. As is shown in Table IV the patient's complaint of great fatigue was not entirely due to his disinclination to taking exercise. The data obtained show an unmistakable fatigue effect. In the case of S., a comparatively young man, there was a consistent abatement of the retardation symptoms after the two hours' exercise, while the same amounts of rest affected either only slightly or not at all

these symptoms. The twenty-five days of alternate rest and vibration unmistakably point to the same conclusion.

Excluding these cases in whom there is a considerable degree of physical depravity incident to old age, somatic complications, or poor nourishment, we believe that there remains a large class of patients whose feeling of inadequacy, retardation, and mental depression are indications for exercise, both passive and active. The amounts of this exercise, we think, should be determined for the individual cases by methods more accurate than the usual clinical observations.

DEMENTIA PRÄCOX IN FRANCE WITH SOME REFERENCES TO THE FREQUENCY OF THIS DIAGNOSIS IN AMERICA.

By CLARENCE B. FARRAR,

Assistant Physician and Director of the Laboratory, Sheppard and Enoch Pratt Hospital, Baltimore.

A remarkable polemic appeared in the *Journal de Neurologie* (5 et 20 janvier, 1905) in which M. Marandon de Montyel took up the cudgels for French psychiatry against the German invasion. This polemic, which aims to be at once an exposition and denunciation of false teaching, a warning against its dangers, and an exhortation to be true to French traditions in matters psychiatric, was put forth evidently as an effort to stem the spreading defection in the French camp.

The *Dementia präcox* of Kraepelin was the issue.

A primary dementia in young individuals had originally been described by French authors. Esquirol in a single classic paragraph [1] in his section on *Idiotie,* mentioned cases in which children of healthy birth presented a normal growth of mind and body up to a certain period, at which their intellectual activity, "not being proportionate to their physical powers," came to a standstill and further development was impossible. Pinel had also described similar cases.

Morel, who was the first to use the appelation, "*démence précoce,*" gave to the disease the stamp of inherited degeneracy. From this point of view the condition did not represent an epochal

[1] "Quelquefois les enfans naissent très sains, ils grandissent en même temps que leur intelligence se développe, ils sont d'une grande susceptibilité, vifs, irritables, colères, d'une imagination brillante, d'une intelligence développée, l'esprit est actif. Cette activité n'étant pas en rapport avec les forces physiques, ces êtres s'usent, s'épuisent vite, leur intelligence reste stationnaire, n'acquiert plus rien, et les espérances qu'ils donnaient s'évanouissent, c'est l'idiotie accidentelle ou acquise; quelquefois aussi une cause accidentelle arrête le développement des organes et de l'intelligence." Maladies Mentales, 1838, Tome II, p. 342.

accident, but constituted rather "la funeste terminaison de la folie héréditaire. Une immobilisation soudaine de toutes les facultés, une démence précoce, indiquent que le jeune sujet a atteint le terme de la vie intellectuelle dont il peut disposer."[2]

CHRISTIAN later dealt exhaustively with the disease, recording his observations upon the large material at Charenton. CHRISTIAN took stand against the view that dementia präcox was the outcome of hereditary degeneration, and pointed out particularly the fact that up to the onset during the puberal epoch, development was in the majority of cases normal, that the patients had indeed not infrequently shown unusual intellectual activity. With vivid simile he pictured the mental blight with which children of bright promise might thus suddenly be stricken. "Tel, au printemps, un arbre, chargé de fleurs, promet les plus riches récoltes: tout d'un coup la sève tarit, les fleurs se flétrissent et tombent sans avoir été fécondées, et il ne reste qu'un tronc desséché, à jamais stérile."[3]

Whatever differences of opinion existed among various French observers regarding etiology or symptomatology, all had been united upon at least two points, which gave to the disease a distinctive character. These points were, (a) the age of onset, (b) mode of termination. The *démence précoce française* was accordingly a circumscribed disease; it appeared regularly during the pubescent period and ended invariably, after a relatively short interval, in complete dementia.

[2] Traité des Maladies mentales, 1860, p. 566. MOREL describes a typical case in a lad of thirteen (mother insane, grandmother very eccentric), who, up to that age, had excelled his schoolmates in mental attainments, although backward in physical development. "Il était désespéré d'être le plus petit de sa classe quoiqu'il fût toujours le premier dans ses compositions, et cela sans effort et presque sans travail. . . . Il perdit insensiblement sa gaieté, devint sombre, taciturne, et montra de la tendance à l'isolement . . . . . dépression mélancholique . . . . haine pour son père portée jusqu' à l'idée de le tuer." Under treatment the physical condition improved, but another untoward symptom made its appearance. "Le jeune malade oublia progressivement tout ce qu'il avait appris; ses facultés intellectuelles si brillantes subirent un temps d'arrêt très inquiétant. Une espèce de torpeur voisine de l'hébétement remplaça l'activité première, et lorsque je le revis, je jugeai que la transition fatale à l'état de démence précoce état en voie de s'opérer."

[3] Annales Medico-psychologique, Janvier-Octobre, 1899.

When, therefore, the revolutionary synthesis of KRAEPELIN was made public, in which were brought together, as manifestations of a single malady, the various *démences vésaniques* of French authors, the *Katatonie* of KAHLBAUM, the *Hebephrenie* of HECKER, cases included under the *stupidité* of GEORGET, the *confusion mentale* of DELASIAUVE and CHASLIN, and the *Amentia* of MEYNERT, and finally (God save the mark!), the *délire chronique à évolution systématique* of MAGNAN, war was declared at once. The new gospel from over the Rhine threatened the proud structure of French psychiatry at several points. It confounded in one disease-picture conditions generally assumed to be distinct; it erased from the classification the cherished mania and melancholia of PINEL and ESQUIROL as disease entities; it relegated to oblivion most of the so-called secondary dementias which had held so important a place; it did violence to the teaching of MAGNAN who had brought to elaborate fruition the doctrine of MOREL concerning the degenerative phychoses, who had long been the center of a most influential school of alienists, and whose dicta had come to be widely regarded as established principles.

The Heidelberg doctrines were calculated, however, to compel respect if not conviction. They represented, not the theoretic elaboration of the green-topped table, but the outgrowth of continuous, conscientious, minutely analytic bed-side observations, which were kept constantly up to date by a systematic following of the subsequent histories of discharged patients. They carried with them, moreover, a very considerable simplification into the classification of mental disorders, by demonstrating bonds of union in affections not looked upon previously as related. The opposition which the views of KRAEPELIN awakened in France, was nevertheless not likely to diminish when the boundaries of dementia präcox began to extend and to become apparently less sharp and certain; when it was shown that the disease was not necessarily limited to the puberal or developmental period, but might appear at practically any age, and was not therefore *in sensu stricto* a *precocious* dementia; when in the final place it was admitted *ex cathedra* that in a certain proportion of cases the patients might to all intents and purposes entirely recover, the disease being therefore in these cases not a *dementia* at all.

At the parting of the ways in France, there was on the one

side a patriotic retrenchment behind the walls of traditionary diagnostic strongholds; on the other, among men who in the affairs of science know no country but are citizens of the world, the gates were opened to the message from over the borders, that it might be fairly judged upon its merits. To the latter camp belonged first and foremost SÉRIEUX, who in repeated publications[1] brought to the attention of his countrymen the Kraepelinian concept of dementia präcox, which he regarded as the most brilliant discovery in psychiatry since that of general paresis.

The opposing camp, prominent in which was RÉGIS, adhered to the démence précoce of French authors, the more narrowly limited disease as presented by CHRISTIAN. For them the "démence précoce allemande" as such had no existence, but represented a mosaic, a heterogeneous assemblage of conditions, some of which were to be classed with the toxic insanities, the *confusion mentale primitive* of CHASLIN, and others with the *folies des dégénérés* of MAGNAN. To this camp belongs also M. MARANDON DE MONTYEL.

Such was the situation when, at the Congress of French Alienists at Brussels in 1903, during the discussion of the paper of CLAUS on *Catatonie et Stupeur*, it was proposed by M. GILBERT BALLET that at the session of the following year the whole problem of dementia präcox be formally presented for discussion, in the hope that if possible a solution, or a reconciliation of opinions might be reached. The events of the congress which met at Pau, in August, 1904, are too fresh in the memory of all to need recalling in detail. M. DENY, chef of the section Rambuteau for insane at the Salpêtrière, who was charged with the presentation of the question, took his stand more unequivocally and fearlessly under the German banner than any other of his compatriots had yet done.

In the first place, M. DENY categorically denied the existence of the *démences vésaniques*, or secondary dementias, which had figured so conspicuously in French classifications. According to the prevailing teaching the *démences vésaniques* constituted a common terminal demential slough of despond into which plunged

[1] Rev. de psychiatrie, Avril, 1900; Gazette hebdomadaire, 10 Avril, 1901; Rev. de psychiatrie, Juin, 1902.

promiscuously, and beyond hope of later recognition and differentiation, various originally distinct diseases, including mania, melancholia, the degenerative psychoses, etc. BALLET had thus spoken of dementia präcox as *la démence vésanique rapide.*

According to the newer views, a common indifferent terminal dementia is a misnomer. Mental diseases proper may be classified in two great groups:

(a). Dementing processes.

(b). Non-dementing processes.

In the former group, the dementia is to be regarded, not as a secondary condition which succeeds the psychosis proper, but as an essential and more or less progressive symptom of the disease, which is discoverable early in the course of the malady and which carries the distinctive and characteristic stamp of the psychosis throughout, thus often making retro-diagnosis possible in old patients who present the picture of complete mental degradation. The dementias of the various mental diseases are therefore in a sense specific.

It must be assumed that the dementing processes are associated with definite structural changes in the cortical tissue. These alterations, while early demonstrable in some conditions (G. P.), may be at first unrecognisable in others (D. P.). Similarly, the very earliest signs of mental deterioration may escape notice. According to our conception of the dementing process, however, organic change and accompanying clinical manifestation must be present from a very early period in the evolution of the disease, and theoretically, as soon as structure alteration has passed the bounds of the so-called reparable stage, the clinical hall-marks of mental retrogression should become visible. If these views are correct, the great mass of secondary dementias, and among them the *démence vésanique rapide* of BALLET, can have no existence.

Not only did DENY expunge the *démences vésaniques* from his nosographic scheme,—he gave his unqualified adhesion further to the view which dethrones mania and melancholia (excepting KRAEPELIN's involutional melancholia) from the rank of primary disease-autonomies, and describes in their places phases of exaltation and depression occurring in the maniaco-depressive insanity, paresis, the toxic psychoses, dementia präcox, etc. DENY'S extreme heresy lay perhaps, however, in his willingness to transfer

en bloc the several conditions described as acute paranoia, *délire polymorphe*, and even the *délire chronique* of MAGNAN to KRAEPELIN'S sub-group *dementia paranoïdes*.

The dementia präcox of DENY is therefore essentially that of KRAEPELIN. He presented it before the Congress as a nosographic and nosologic entity, comprising the simple form of SÉRIEUX and the classic varieties of KRAEPELIN, hebephrenia, katatonia, and dementia paranoïdes. As to the nature of the disease, DENY follows CHRISTIAN in considering it an accidental rather than a constitutional affection, and points out that hereditary stigmata are present only in a minority of cases, and that as a rule the disease overtakes individuals of hitherto assumably normal mentality. He believes it should be classed with the auto-intoxication psychoses.

The Congress at Pau has served to make prominent two facts,—(1) that the Kraepelinian idea has made considerable headway in France, (2) that a unanimity of opinion, however, concerning the status and mutual relations of katatonia, mental confusion, dementia präcox, the so-called simple psychoses (mania and melancholia), and the degenerative insanities, is still far distant. The hostile camp, though it would appear to be numerically weakening, shows no sign of surrender, unless the resort to violent language be taken as a sign of instability. Among the extreme conservatives are those who repudiate the doctrine of KRAEPELIN altogether, partly no doubt because it is German, partly because it is not French, certainly not because the material is so essentially different upon which observations in the two countries have been made.

RÉGIS combats KRAEPELIN'S teaching at every point. He clings tenaciously to mania and melancholia as primary disease forms, likewise to the degenerative psychoses and the systematised deliria. He holds fast also to the *démences vésaniques* assumed to be secondary to all of these forms. KRAEPELIN'S involutional melancholia, he declares, contradicts clinical experience, and the maniaco-depressive insanity is only a "type bâtard de notre folie à double forme." Finally, the increasing prestige of the German dementia präcox he declares to be more than an "*évolution*" (DENY), more indeed than a "*révolution*" (BALLET), and in fact nothing less than a "*bouleversement complet*" of the whole psych-

iatric edifice. Of the conditions brought together in KRAEPELIN's "mosaic," RÉGIS makes two great groups. To the first he assigns all those cases in which individuals more or less burened with bad heredity come to a psychic standstill at the critical age of puberty and then rapidly dement. These represent the true *démence précoce* (type MOREL), the only one according to RÉGIS which should be retained in the classifications. It is a constitutional malady and may be said to include roughly the cases described by KRAEPELIN under the hebephrenic form. In the second group he places the remainder of the dementia präcox of the Germans. RÉGIS denies that these cases belong to dementia präcox proper and ranges them with the intoxication psychoses as represented by the *confusion mentale*, which ends as a rule in recovery, but may become chronic and lead to secondary mental enfeeblement, which he prefers to call in such cases post-confusional dementia.

In the school of Sainte Anne it was not to be expected that the new teaching would be warmly received. Thus VALLON defends the doctrine of MAGNAN concerning the psychoses of degeneration. He retains also as individual diseases mania and melancholia, and affirms that they may end in *démence vésanique*. For VALLON dementia in any case is not the essential character of a disease process, but rather a terminal and secondary condition.

These men represent the extreme of conservatism. They have pledged their faith to the standards formerly set up by the great masters of their own country, and with the remarkable growth of later years to which the seeds of scientific psychiatry, emanating originally from France, have given rise in an alien soil, they are unsympathetic.

A not uncommon objection, already referred to, and which MARANDON DE MONTYEL sets forth at some length in the previously mentioned polemic, is that it is a contradiction of terms to describe a disease which may appear late in life and from which the patient may entirely recover, as a dementia präcox. This objection is calculated at first glance to win sympathy. When one considers the development of the German concept of the disease, however, it is seen to be invalid and superficial. At most, it is unfortunate that a simple descriptive appellation does not always fit accurately *all* the disease pictures which have either

provisionally or otherwise to be grouped under it. It has been a common experience in psychiatric nomenclature from the beginning, and so long as morbid mental conditions exist, to which in the absense of definite information concerning etiology and pathologic anatomy, clinical symptomatic names have to be given, discrepancies of this sort are unavoidable. HECKER's Hebephrenia and KAHLBAUM's Katatonia, the two diseases out of which grew the dementia präcox of KRAEPELIN, are pre-eminently affections of the developmental period, and it is natural to assume that they are the expression of morbid conditions associated with the transition from youth to adult life. Their exact etiology, however, is entirely obscure, and so long as this is the case, so long as the exact causes are unknown which *must* be in operation in order that the disease may make its appearance, it is futile to assert that they may not become operative beyond as well as during the puberal epoch. Dementia präcox (Hebephrenia) and Katatonia, which KRAEPELIN originally described separately, were later amalgamated on the recognition of common fundamental characters, as well as of transitional forms. For the same reasons dementia paranoïdes, at first classed with chronic paranoia, was also assigned later to the dementia präcox group. This form according to KRAEPELIN is likely to occur later in life than the other two. Moreover the German dementia präcox is not necessarily a rapidly progressive disease. Its development may extend over many years and even decade intermissions may intervene. KRAEPELIN points out that certain patients who are apparently overtaken by dementia präcox in later life, can be shown to have presented symptoms during the period of development which may possibly represent the real beginning of the disease. In these cases the mental defect associated with the initial symptoms may be so insignificant as to escape notice, and becoming conspicuous with the later attack, this is erroneously looked upon as the first manifestation of the malady. Finally, the denomination "dementia präcox" has been retained partly for the sake of convenience, although the disease-concept has been enlarged to include a number of sub-groups, out of which, KRAEPELIN himself admits, several separate and distinct nosologic entities may eventually be resolved. The contradiction of terms at which the purists take offense in cases of late dementia präcox, would, it is

true, be obviated by the adoption of a more comprehensive term, e. g., " Dementia Simplex," suggested by RIEGER.

The bugbear of recoveries in dementia præcox at which M. MARANDON DE MONTYEL and others of the hostile camp recoil, involves in the first place the question of what is understood by " dementia." There is unfortunately a considerable elasticity of meaning attached to the term by different authors. It is used to indicate a stationary end-condition, a progressive mental enfeeblement, and even a temporary functional defect from which recovery is possible. Etymologically, the word has a much broader signification than it has come to possess through the usage of the past hundred years. The Latin *dementia* means simply madness or insanity, (*de*—away from, out of; *mens,* mind); similarly the verb ***dementire*** signifies to be mad, to rave. Among the laity, and often in newspaper reports, the term is still used in its primitive meaning, the words insanity and dementia being employed interchangeably.

PINEL attached to the term the specific meaning of an extreme and permanent enfeeblement of the intellectual faculties. " Dans la démence, il n'y a point de jugement, ni vrai ni faux; les idées sont comme isolées, et naissent les unes à la suite des autres; mais elles ne sont nullement associées, on plutôt la faculté de la pensée est abolie . . . . oubli complet de tout état antérieur, . . . existence automatique."[8]

ESQUIROL described the condition in greater detail, and aptly characterised it as " l'abolition plus ou moins prononcée de toutes les facultés sensitives, intellectuelles et volontaires."[9] Nevertheless the specific quality of dementia as portrayed by PINEL was lost in ESQUIROL's classification by the introduction under the head of ***démence aiguë*** of an acute and recoverable form of mental dulling due to nutritional anomalies, conditions of exhaustion, intoxication, etc. To this grouping together under the common head " dementia " of both permanent organic defects, and functional disturbances of good prognosis, is due the divergence of opinion and usage of the term among later writers. For the sake of clearness it would seem well if the narrower definition of PINEL

[8] Traité médico-philosophique sur l'aliénation mentale, 1801, pp. 164-6.
[9] Maladies mentales, 1838, Tome II, p. 232.

were universally followed, and if under dementia were described only such cases as show permanent mental deterioration. The expression "acute recoverable dementia" is still retained in some of the text-books, but it is to be hoped that it will finally disappear. KRAEPELIN described *dementia acuta* in his earlier editions, but now places the cases thus designated, under the exhaustion psychoses.

The concept of dementia which would appear to be most consonant with present information, contains, then, two principal points:

(1) The condition is one from which recovery does not occur, being determined by definite and permanent structural changes in the central organs, and particularly in the cerebral cortex.

(2) The condition is not simply a closed and stationary *stadium terminale;* it is rather a disease process, a true psychic necrobiosis.[1]

Adopting this view-point, what is to be said of the cases of dementia präcox which recover? Does it follow, as M. MARANDON DE MONTYEL affirms, that "every recovery represents an error in diagnosis?" Considering the present fluid state of the dementia präcox question, it is doubtless the fact that cases are placed in this group which do not belong there, and that in some instances psychoses originally so classified, which end in recovery, as well also as certain ones which do not, have later to be assigned to other categories. It can be shown, however, that the dogmatic assertion just quoted palpably oversteps the truth.

It is a conspicuous fact that at certain intervals of time new nosographic entities appear on the psychiatric horizon, which have the misfortune to become popular, as it were. In their passage they increase in bulk at the expense of less well defined pathologic conditions, especially by the absorption of numerous cases from that important category in all classifications,—the undiagnosed

[1] PRITCHARD (Treatise on Insanity, 1835, pp. 88-9) described *incoherence* or *dementia* as a progressive morbid change characterised by four successive stages:

(1) Forgetfulness or loss of memory,
(2) Irrationality or loss of reason,
(3) Incomprehension,
(4) Inappetency or loss of instinct and volition.

group, which are often found to fit the new pattern with singular convenience. It is only when the new disease is looked at from the critical viewpoint of a succeeding generation, that it is divested of its irrelevant additions or resolved into its elements, and finally finds its approximate place in the improved classification. Such was the history of the *monomania* of ESQUIROL, and the *paranoia* of later writers (*Verrücktheit*, GRIESINGER), of the *moral insanity* of PRITCHARD, of the *folie des dégénérés* of MAGNAN, of the *amentia* of MEYNERT,—and the *dementia præcox* of KRAEPELIN is no exception to the rule. Moreover, the tendency among the adherents of a new school to out-Herod Herod is in part responsible for the unusual hypertrophy which the new disease-concept at first undergoes. KRAEPELIN reckons 14-15 per cent of the total admissions, in the dementia præcox group. DENY raises this figure to 25 per cent. DENT[1] goes higher with 31.8 per cent and if one includes the so-called "allied conditions,"[2] we have according to DENT, a *full third of all the admissions* belonging to the dementia præcox group! And yet this is not the limit. In the report of the current year of the Connecticut Hospital for Insane at Middletown (NOBLE), *thirty-seven per cent* of the admissions of the previous year are classified as dementia præcox! The allusion of FALRET to the degenerative insanity of MAGNAN, as "*un immense océan, sans limites et sans fond*," may obviously still find application.

As for recoveries, KRAEPELIN allows tentatively 21 per cent, the cases coming from the hebephrenia and katatonia groups. This is indeed a high figure, but it must be remembered that from KRAEPELIN's view-point many of these apparent recoveries are simply remissions. Moreover he has always been inclined to the view that a recovery in any case is not a recovery in the strict sense, but rather a "*Heilung mit Defekt*" (NEUMANN), a view which has been especially championed by ASCHAFFENBURG. When one considers, however, that the dementia præcox of KRAEPELIN includes cases still described by other authors as confusion men-

[1] Fifth Annual Report, Manhattan State Hospital, West, 1905.

[2] Groups of obscure cases which Dr. ADOLPH MEYER suggests attaching provisionally to the various psychoses with which they appear to have most in common.

tale, melancholia cum stupore, amentia, etc., a fair percentage of recoveries is to be expected. It is admitted by several French writers that a differential diagnosis between confusion mentale and dementia präcox may be difficult or impossible. WERNICKE, referring to the intrapsychic akinesis in similar cases also observes that sometimes "eine Differentialdiagnose zwischen depressiver Melancholie, jenem an sich heilbaren und jedenfalls noch entwickelungsfähigen Krankheitsbilde, und primärer Demenz überhaupt nicht möglich ist."[10] Under these circumstances it is unsafe to say that of a group of cases clinically indistinguishable from each other at first, only those which end in definite mental deterioration may be called dementia präcox, while those which recover must necessarily belong to another distinct class, represented by the confusion mentale. The fact that we do not possess definite criteria by which it can be stated at the beginning in every case, whether the patient will regain mental health, whether possibly a remission will occur, or whether the process of permanent mental regression will establish itself—and in the latter case, whether only a mild or a severe degree of dementia will be reached—the fact that these various events are not always foreshadowed, is no reason for denying the validity, or at least the serviceability of a classification which brings together conditions which may present all of these several outcomes. Dementia präcox is conceived as a psychosis which is essentially a dementing process, and this process has a beginning, a course marked by more or less constant features, and an event which is qualitatively, although not quantitatively characteristic. Underlying this clinical course is an anatomico-pathologic process—to be sure, not yet defined—which may likewise be assumed to present quantitative variations in its manifestations. In one instance it may establish itself early and develop rapidly, so that the disease may deserve the appellation "florida," as in certain cases of phthisis or paresis; again, the initial phenomena may be slight and the development slow; while in still other cases we are compelled to assume that the lesions may be so insignificant as to be fully reparable.

[10] Grundriss der Psychiatrie, 1900, p. 542.

The German synthesis, which at most, claims to be only a provisional one,[11] is abundantly justified, and represents a deeper and safer clinical interpretation than one which denies the relationship of disease conditions which may differ only in the fact that all do not end alike in dementia. To affirm categorically that a case which appears after the developmental period of life is past, or which does not terminate in conspicuous dementia, *cannot* belong to the group described under the name of dementia präcox, is as inconsequent as to declare that every case of typhoid fever with hemorrhage or perforation *must* die, or that every patient with influenza *will* have recurrent attacks, and that the absense of recurrence in the one instance, or the recovery of the patient in the other, indicates an error in diagnosis.

That cases of katatonia, possibly also of hebephrenia, may recover, has to be admitted; when, however, MARANDON DE MONTYEL *adds* to KRAEPELIN'S 21 per cent of apparent recoveries, the 44 per cent of MASSELON'S cases which are able to resume their former occupations, and makes thus a grand total of 65 per cent of favorable terminations, citing these figures for the effect of a *reductio ad absurdum*, he commits a statistical fallacy which needs no comment.

The charge that the dementia präcox of the Germans tends to swallow up the whole scheme of classification in mental diseases, rests upon a superficial consideration of the facts. As has been said, the diagnosis has had the ill-fortune to become a popular one, but the hypertrophy in which the popularity has in some quarters resulted, cannot justly be said to be altogether the fault of the original new disease-concept.

In this connection the accompanying curves, showing the fortunes which the dementia-präcox idea has enjoyed in various

[11] Unter dem Namen der Dementia præcox sei es uns gestattet, vorläufig eine Reihe von Krankheitsbildern zusammenzufassen, deren gemeinsame Eigentümlichkeit der Ausgang in *eigenartige Schwächezustände* bildet. Es scheint zwar, dass dieser ungünstige Ausgang nicht ausnahmslos eintreten muss, aber er ist doch so ungemein häufig, dass wir bis zur weiteren Klärung der hier ihrer Lösung harrenden klinischen Fragen an der gebräuchlichen Bezeichnung festhalten möchten. . . . Ob die Dementia præcox in dem heir umschriebenen Umfange eine einheitliche Krankheit darstellt, muss vorderhand zweifelhaft bleiben." KRAEPELIN, Psychiatrie. 1904, pp. 176, 271.

American hospitals for the insane during the past ten or fifteen years, are interestingly illustrative. Whether these curves represent in every instance the actual opinions of the chief of the hospital, it is impossible to say. The official figures published in the annual reports furnish the only constant criterion by which one is able to judge—and from these figures the curves have been accurately constructed. They are self-explanatory. The black curve represents collectively all cases described by various authors as manias and melancholias—acute, recurrent, and chronic, circular insanity, periodic insanity, and involutional melancholia. In many hospitals the classification has undergone changes and new names have been assigned, as indicated. The curve stands, however, for the same group of cases throughout, as nearly as could be calculated. From the Kraepelinian view-point it represents the aggregate of cases included under maniaco-depressive insanity and melancholia. Similarly, the dotted curve indicates the aggregate of cases described as primary and acute dementia, hebephrenia, katatonia, and dementia präcox. As will be seen the tendency has grown to follow KRAEPELIN and group all these conditions under one head, that of dementia präcox. In numerous hospitals the category "Paranoiac States" has recently been somewhat prominent in the classifications. A certain proportion of these cases would perhaps later appear in the dementia präcox group, but their designation is so vague that they have not been included in our figures.

Several facts are made conspicuous by the curves.

(1) The time-honored, all-embracing, receptacles—mania and melancholia, have in many representative American institutions gradually been losing prestige. Ten years ago it was common enough to find 50 to 70 per cent of the total admissions classed under these two heads. Since that time these diagnoses have decreased in frequency, in some instances gradually (Curve I), but often fairly abruptly (Curves II-IV) until today they are frequently found to range from 15 to 20 per cent.

(2) Most conspicuous among the diagnoses which have grown at the expense of the mania-melancholia group is that of dementia präcox. In the hospitals where the new disease has found favor, this increase is no less startling than the decrease in the former group. Moreover, the striking relation between the two curves,

one being often almost the exact reverse of the other, indicates clearly that the sudden rise of dementia præcox was accomplished largely in these instances by the simple transference of a mass of cases from the mania-melancholia category. This remarkable diagnostic transformation, graphically represented by the crossing of the solid and broken curves, stands in part for improved methods of observation and classification. It also illustrates, however, the unfortunate tendency, already mentioned, of popularizing a new disease, and it is safe to conjecture that in certain institutions where the dementia præcox curve suddenly shot up to 25 or 30 or 35 per cent of total admissions, a material drop in the curve will occur in due process of time.

(3) In a certain number of hospitals, in contradistinction to those just referred to, the influence of the newer teachings has apparently been felt very little or not at all. In these, the mania-melancholia group still maintains its swollen proportions, and dementia præcox—usually under the old name "primary dementia," occupies an extremely insignificant place (Curve V). Sometimes a slight but inadequate tendency has manifested itself to diagnose dementia præcox more frequently, and less frequently mania and melancholia (Curve VII).

(4) Still other clinics occupy a mean position between the two extremes mentioned (cf. Curves IV and V). In these institutions, the symmetric decrease and increase respectively of the mania-melancholia and dementia præcox groups, while conspicuous, was not so reactionary as in those first alluded to. For example in Curve VIII, which may perhaps be looked upon as the most rational of the series, dementia præcox did not spring from the ground to the clouds like the fabled bean-stalk, but was a considerable factor throughout the period represented. Likewise the mania-melancholia group in its most palmy days did not in this case exceed 37 per cent of the total admissions.

Exceptionally, as at McLean Hospital (COWLES), the climax in the diagnostic transformation was reached comparatively early and has already been followed by a moderate reaction in which the mania-melancholia class—under the name, "depressive-maniacal insanity" (COWLES)—is again enlarging and dementia præcox somewhat symmetrically diminishing.

As has been said, the curves here presented are based upon the

published reports of the several hospitals. That these may not, however, always correspond exactly with the actual states of opinion at these hospitals is shown by the fact that in the case of the Manhattan State Hospital, West (the first report of which appeared in 1900), superintendent DENT, in the text of his report of the current year, estimates the number of cases of dementia präcox (and allied conditions) at 34 per cent of all admissions, while the mania-melancholia group reaches only a little above 18 per cent. In the statistical tables of this hospital for the same year, however, a very different ratio is presented. Here the mania-melancholia group stands at 56 per cent and dementia präcox (primary dementia) at 12 per cent.[12] Furthermore, in the Sheppard and Enoch Pratt Hospital, where from 10 to 15 per cent of our admissions are diagnosed dementia präcox, in the official tables published up to 1903, this category did not appear.

It has been truthfully asserted that the newer scheme of classification in which dementia präcox occupies so prominent a place, destroys the two most cherished disease-concepts inherited from the older masters—*mania* and *melancholia*. It is well-known, however, that the denial of the existence of these two forms as distinct diseases, came not originally from Germany, but was heard long ago in France, the land of their new birth.

Wrote MOREL in 1860:[13] "Je ne rejette ni la manie, ni la mélancholie, ni les diverses perversions des sentiments; mais je n'en fais pas les éléments de ma classification. . . . L'excitation et la dépression, dans leur acception la plus large, ne sont que des symptômes, transitoires dans quelques cas, plus permanents dans

[12] It is to be observed that refinements of diagnosis have been more or less hampered, at least so far as the official reports are concerned, in the New York State hospitals, by the fact that the Lunacy Commission of that State imposed upon all the hospitals a cut and dried scheme of classification containing a half-dozen or so piegon-holes, into which the officers of the various hospitals, whatever their own opinions may have been, have been required to fit all the cases admitted under their care.

This stereotyped scheme which recognizes only *mania* and *melancholia* and their various symptomatic sub-groups, *circular insanity, dementia*, terminal, senile, primary; *paranoia, paresis, epilepsy, imbecility, idiocy*, has been binding without alteration for the hospitals of New York State since 1888.

[13] Traité des Maladies Mentales, pp. viii, 271.

d'autres, et alternant entre eux. Un malade peut être exalté jusqu'à la fureur et la convulsion, déprimé jusqu'à tomber dans l'extase, la stupeur, la catalepsie, sans qu'il soit permis de voir d'autre chose que l'expression du mode particulier dont le système nerveux manifeste ses souffrances sous des influences pathologiques déterminées; mais, encore une fois, ces divers états symptomatiques, en raison même de leur mobilité, ne sauraient être le point de départ d'une classification immuable . . . la manie (exaltation) et la mélancholie (dépression) sont des symptômes que l'on rencontre dans toutes les variétés de la folie, et qui, par conséquent ne constituent pas des formes essentielles.

Similar ideas were expressed by FALRET[1] in 1863: "Ces formes sont si peu naturelles que l'on a été conduit à admettre, par exemple, des manies mélancholiques et des mélancholies maniaques. Tous les jours, on voit survenir un accès maniaque chez un malade atteint d'abord de délire partiel (mélancholie), et, réciproquement, on observe des maniaques chez lesquels prédominent des séries d'idées mélancholiques ou des idées fixes qui servent à caractériser les diverses variétés de l'aliénation partielle. De plus, ces prétendues formes n'ont aucune marche spéciale et déterminée. Il est impossible de prévoir ce que deviendront dans l'avenir un maniaque ou un mélancholique que l'on observe à une période donnée de leur affection. Enfin, la transformation de la manie en mélancholie et *vice versa*, que plusieurs auteurs avaient déjà constatée, d'une manière accidentelle, mais dont la succession régulière nous a servi à constituer une forme spéciale, sous le nom de folie circulaire, est venue fournir un dernier argument contre l'admission de ces deux états symptomatiques comme espèces véritables de maladies mentales."

It must be said that one of the most welcome signs of the times is the fact that the warfare over the dementia præcox of the Germans, shows no tendency to abatement, and that discussions and arguments *pro et contra* continue to appear on all sides. The new disease-concept has had two potent enemies to contend with—two tendencies mutually contradictory, both preeminently human,—(1) the spirit of too ready acceptance, which soon ends by seeing in every third or fourth case of mental disease an

[1] Maladies Mentales, J. P. FALRET, p. xxxiv.

instance of the new malady; (2) the spirit of biased and unconditional negation, which sees in the new description only a useless, even mischievous, restatement of old facts, and categorically denies the existence of the specific characters which the new synthesis presents. These two opposing tendencies are gradually being overcome by a third—the spirit of impartial critique, through which, it is to be hoped, a more general agreement will eventually be reached as to the real nature and significance of dementia präcox in the psychiatric classification.

Regarding the attitude of M. MARANDON DE MONTYEL there is but one word more to add. He begins by accusing the German disease-concept of swallowing up the whole field of mental pathology: he ends by *identifying absolutely all three forms of the dementia präcox of* KRAEPELIN with the degenerative psychoses of MAGNAN. "La similitude absolue avec les folies dégénératives des trois formes délirantes de la démence précoce de M. KRAEPELIN est donc évidente. . ."[15] Thus by a patriotic inconsistency he denies the right of engulfing to the German, but allows it without scruple to the French disease. Moreover he repeats that the ***héréditaires,*** comprising the degenerative psychoses of MAGNAN do not dement. "Il est de règle que les vrais dégénérés d'ordinaire guérissent et dans tous les cas ne deviennent jamais déments." Therefore the cases described by KRAEPELIN and his pupils, and ending in a specific dementia, the characters of which are so well known, do not dement at all, and the disease is consequently non-existent. Nothing simpler. Indeed M. MARANDON DE MONTYEL says explicitly: "Ce n'est pas seulement, en effet, les deux tiers, comme pour leurs prétendus déments précoces, qui sortent de l'asile et reprennent la vie commune, mais la presque totalité."[16]

The above deductions are a sufficient comment upon themselves.

[15] Les formes de la démence précoce, Annales Méd.-psychologique, Sept.-Oct., 1905.

[16] Loc. cit.

LEGEND TO THE CHARTS.

The accompanying curves express the varying frequency of diagnosis of cases in the two great disease-groups, *dementia præcox* and *maniaco-depressive insanity*, in nine representative American clinics, during a series of years.

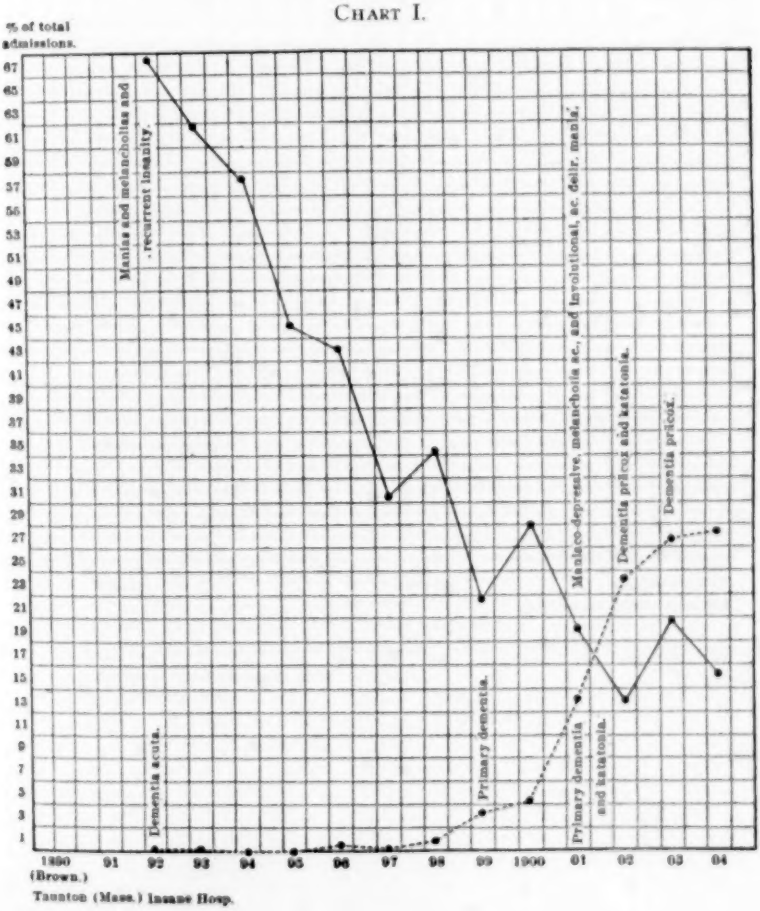
With one exception the curves are based entirely upon the figures published in the official tables of the annual reports of the respective hospitals. In one instance (Curve III), the points for 1904 (D. P., 34%; M.—D., 18 + %) correspond, not with the figures in the statistical tables, but with the assumably more trustworthy ones in the superintendents' text analysis of admissions.

The unbroken curve comprehends together all diagnoses of various authors of the several forms of mania, melancholia, recurrent, periodic, or circular insanity. All these types would be included under the melancholia and maniaco-depressive insanity of KRAEPELIN.

The broken curve represents all diagnoses of conditions which could be placed in the various subdivisions of the dementia præcox group.

Changes in the nomenclature which occurred from time to time in the official classifications of the several hospitals, are noted in the curves, which are referred to in greater detail in the text.

CHART I.



Taunton (Mass.) Insane Hosp.

CHART II.

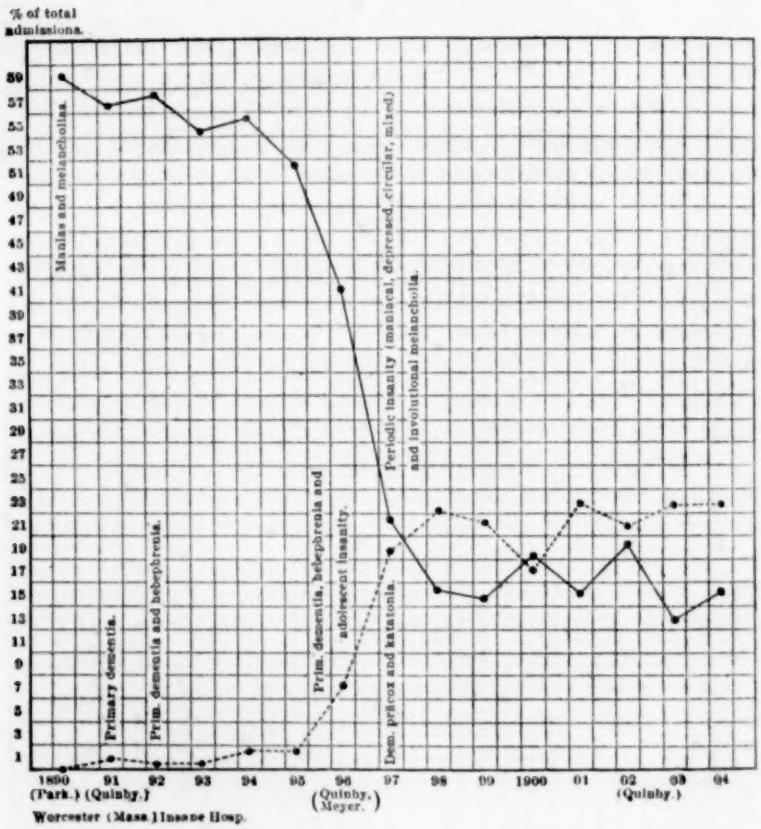
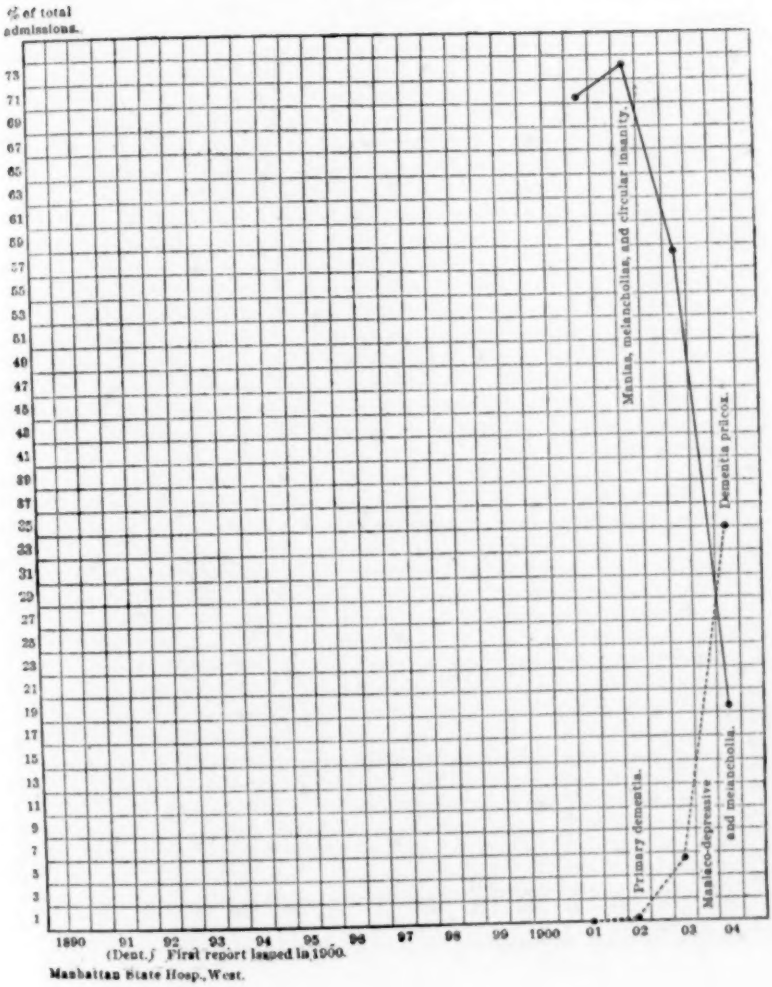

% of total admissions.
59
57
55
53
51
49
47
45
43
41
39
37
35
33
31
29
27
25
23
21
19
17
15
13
11
9
7
5
3
1
Manias and melancholias.
Primary dementia.
Prim. dementia and hebephrenia.
Prim. dementia, hebephrenia and adolescent insanity.
Dem. præcox and katatonia.
Periodic insanity (maniacal, depressed, circular, mixed) and involutional melancholia.
1890 (Park.) 91 (Quinby.) 92 93 94 95 96 (Quinby, Meyer.) 97 98 99 1900 01 02 03 04 (Quinby.)
Worcester (Mass.) Insane Hosp.

CHART III.



(Dent.) First report lapsed in 1900.

Manhattan State Hosp., West.

CHART IV.

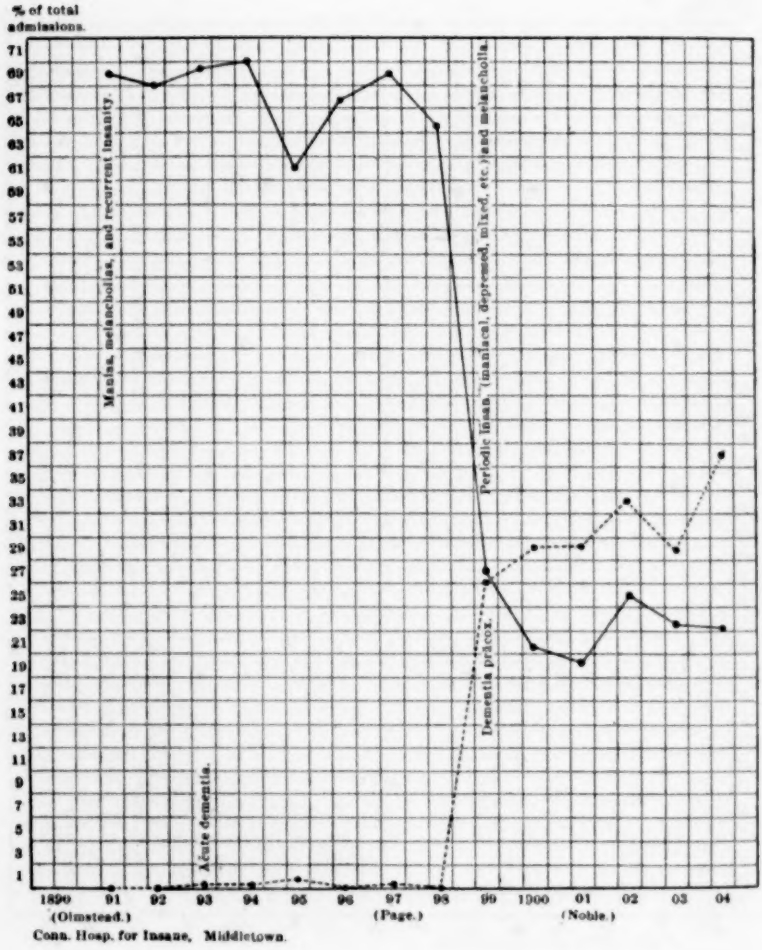
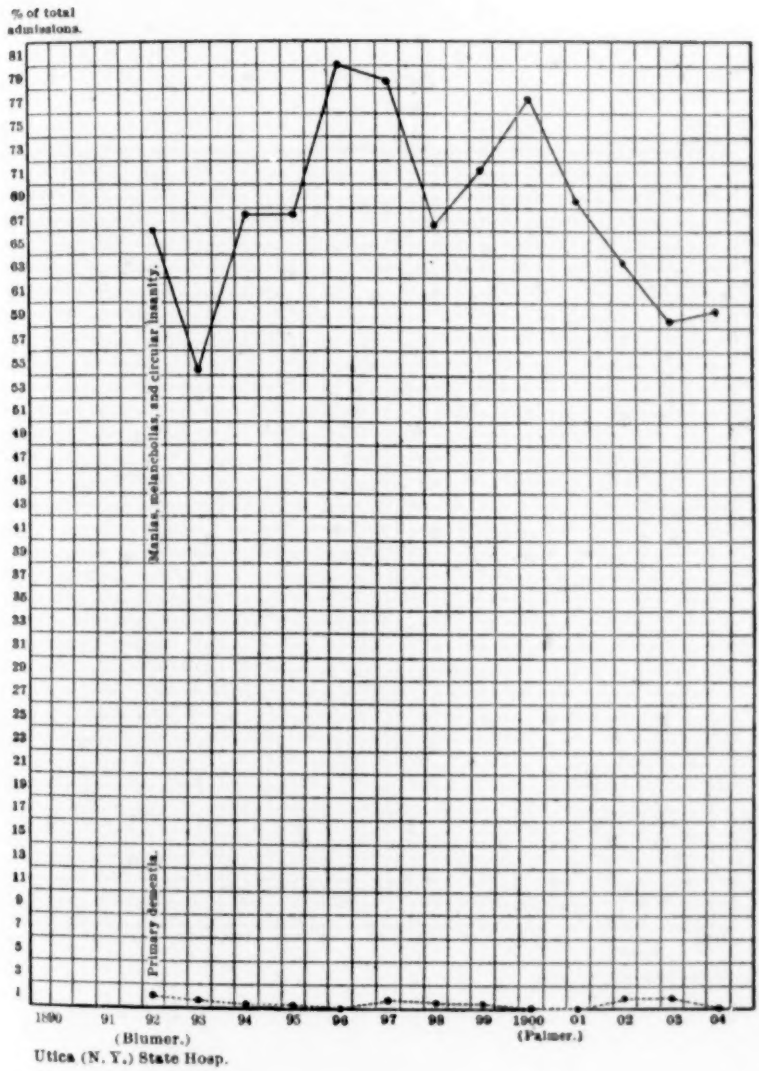
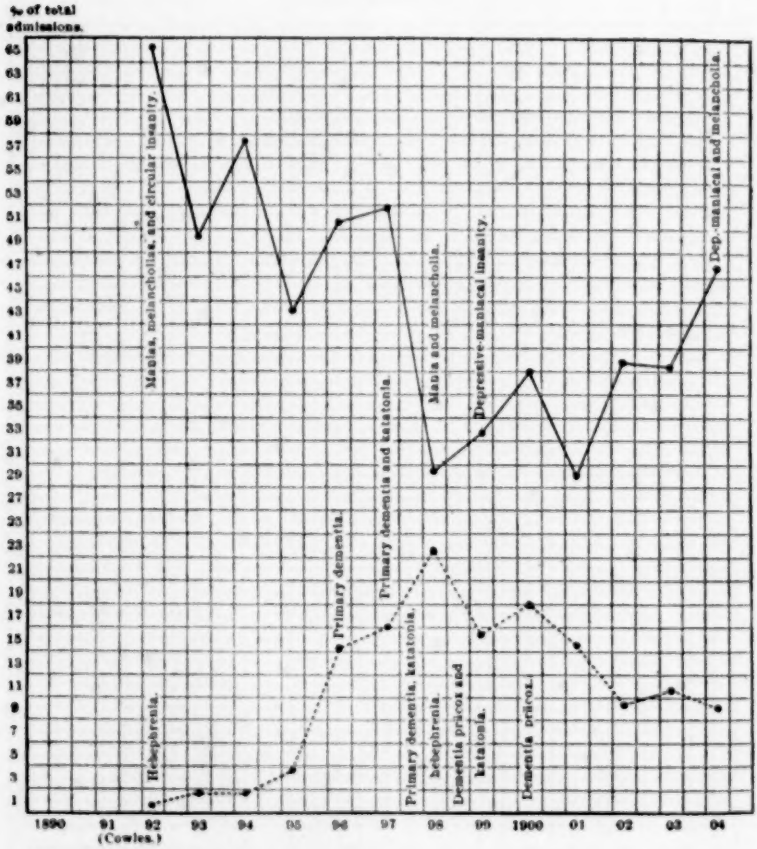

% of total admissions.
71
69
67
65
63
61
59
57
55
53
51
49
47
45
43
41
39
37
35
33
31
29
27
25
23
21
19
17
15
13
11
9
7
5
3
1
Manias, melancholias, and recurrent insanity.
Acute dementia.
Periodic insan. (maniacal, depressed, mixed, etc.) and melancholia.
Dementia præcox.
1890 91 92 93 94 95 96 97 98 99 1900 01 02 03 04
(Olmstead.)
(Page.)
(Noble.)
Conn. Hosp. for Insane, Middletown.

CHART V.



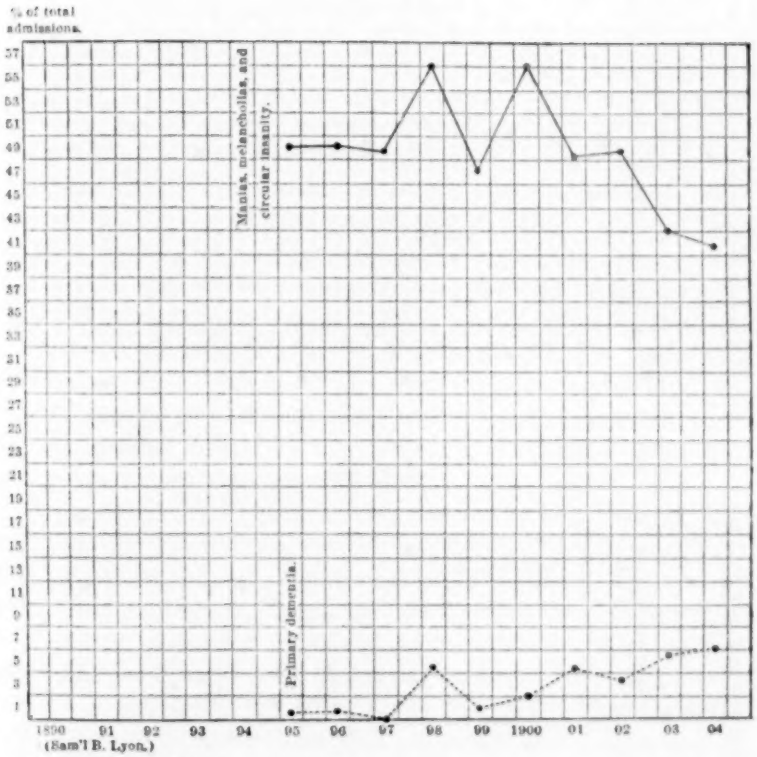
Utica (N. Y.) State Hosp.

CHART VI.



McLean Hosp., Waverly, Mass.

CHART VII.


% of total admissions.
Manias, melancholias, and circular insanity.
Primary dementia.
1890 91 92 93 94 95 96 97 98 99 1900 01 02 03 04

(Sam'l B. Lyon.)

N. Y. Hosp., Bloomingdale.

CHART VIII.

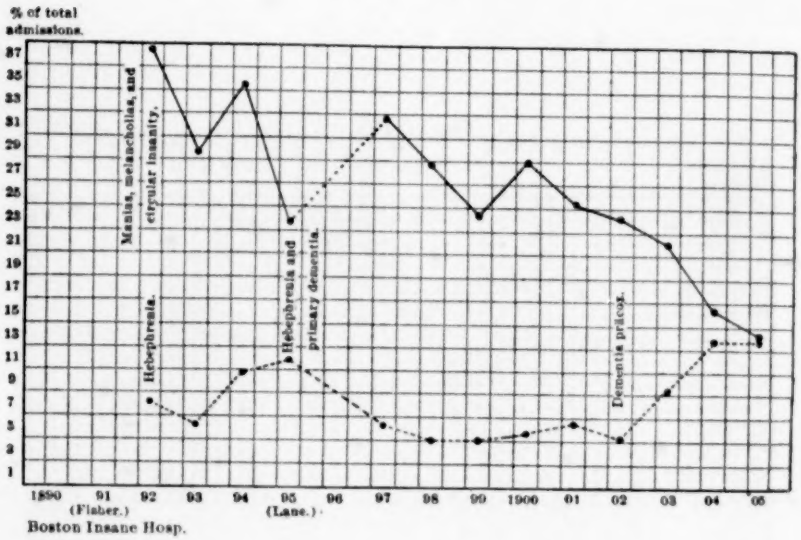
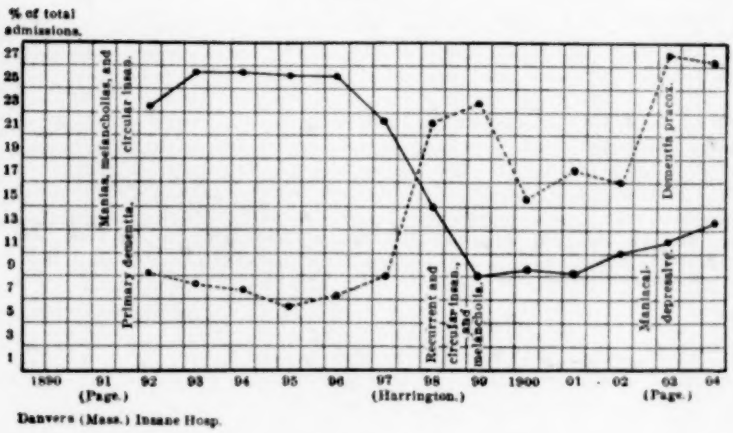

% of total admissions.
Manias, melancholias, and circular insanity.
Hebephrenia.
Hebephrenia and primary dementia.
Dementia præcox.
1890 91 92 93 94 95 96 97 98 99 1900 01 02 03 04 05
(Fisher.)
(Lane.)
Boston Insane Hosp.

CHART IX.



A STUDY OF SOMATIC IDEAS IN VARIOUS PSYCHOSES.

By THEODORE A. HOCH, M. D.,

Assistant Physician and Pathologist, Worcester Insane Hospital, Worcester, Mass.

"In its primitive form pain is always physical, that is to say connected with external or internal sensations. Sufficiently precise as regards superficial parts of the body, especially the skin, its localization is more vague when it is seated in the deeper parts, the viscera, the instruments of organic life. In the last case, when the pain is of internal and non-peripheral origin, coming from the great sympathetic or related vagus nerve, it is accompanied by a state of anxiety, of depression or of anguish, which we shall often encounter and which frequently causes it to be said that 'it seems to the patient that the workings of nature within him are suspended.'" The above quotation is taken from Ribot (1), and in a concise form differentiates real pain from the more vague visceral feelings which, in the insane, so frequently serve as a foundation for somatic sensations.

Of the many delusions entertained by the insane, perhaps none are more distressing than those pertaining to their physical welfare. Even in normal individuals, slight bodily ailments cause greater or less mental depression and anxiety, and worry and grief are accompanied by trivial physical pains or exaggerate those already present. Of still greater moment is the personal welfare of the individual who suffers imaginary tortures and is surrounded by imaginary dangers, especially when hampered by faulty reasoning associated with an inability to separate the real from the unreal. The basis of hypochondriacal ideas may be some visceral disease, peripheral neuritis, etc., which gradually becomes elaborated in the patient's mind far beyond the actual existing condition; or the idea may have no physical foundation whatever and is built up of previous delusions which serve as a means of misinterpreting normal sensations or occurrences. Many mental traits have been shown to have a close relation to the

motor mechanism and bodily functions; and aside from the deliria, definite psychoses have been described accompanying visceral diseases.

The relation of mental changes to visceral disturbances was clearly demonstrated by Head (2). He showed the presence of well-marked hallucinations and depressed affects in many diseases, especially of the heart, lungs, and abdominal viscera. His observations were made on patients without a previous psychosis and in whom the mental manifestations arose when the bodily disease was well advanced. The degree of mental derangement bore a direct relation to the intensity of the disease. These psychoses are usually transitory, but often they are the initial symptoms of a prolonged psychosis which may far overreach the physical disease. Depressions of varying intensity are often observed which are wholly out of proportion to the gravity of the disease. Hallucinations, delusions of various kinds and self-accusations, are often present with little or no insight into the condition.

Fischer (3) studied the relation of heart disease to various psychoses and concludes that: (a) heart disease may be the exciting cause in precipitating psychoses in predisposed individuals; (b) the uncompensated heart lesions may induce a psychosis in individuals not predisposed, as a result of disturbance of cerebral circulation and chemical blood changes; (c) the psychoses (under b) are of the type of hallucinatory confusion. The color of the hallucinations is given by the abnormal sensations. If prolonged they may end in dementia.

Krafft-Ebing (4) mentions the following somatic causes for the neurasthenic conditions: bodily over-exertion, toxic influences, syphilis, debilitating effects of the puerperium, chronic local diseases, gastro-intestinal diseases, movable kidneys, diseases of the male and female genitalia, diseases of the nose, unhygienic sexual life, anæmia, poor diet, anti-fat cures, mineral water cures, cold water cures, and hot baths. From this great variety of causes it is evident that individual idiosyncrasies play a great part in the production of neurasthenic states in predisposed neurotic persons.

Kiernan (5) gives a list of diseases which are said to cause, modify, or cure insanity. He mentions more particularly rheumatism, gout, typhoid fever, measles, acute pneumonia, acute

nephritis, and variola, as exerting a favorable influence, perhaps with too much stress, since he goes as far as to say "Paretic dementia is said to have been cured by variola," and, later, "Phthisis renders paretics more or less suspicious."

We frequently have an opportunity to observe the influence which some intercurrent disease has upon a pre-existing psychosis, causing either an exacerbation or amelioration of the mental symptoms. A manic attack may readily turn into a delirium or some grave disease may subdue an excitement.

Ill health is a common general etiological factor assigned in mental diseases. With few exceptions it is rather one of the many acute exciting causes which precipitate the psychosis in a previously neurotic individual. The presence of a physical disease in such persons brings about a concentration of attention upon themselves. They become worried and depressed and soon have permanent morbid somatic ideas with little or no foundation. Psychoses in which there is worry, anxiety and depression, as in melancholia, and the depressed phases of manic-depressive insanity and dementia præcox, may have an acute or sub-acute onset during some illness. In women menstrual disturbances are frequent exciting causes.

In 1869, Mayer (6) studied the influence of menstruation on mental disturbances and gives a table showing the development, or aggravation of mental symptoms before or after menstruation. 2100 women were examined and 400, or 19.05 per cent, showed some alteration. He gives the following table:

	Cases.	Per Cent.
Cephalæa and prosopalgia	86	21.50
Cardialgia with or without nausea	67	16.75
Hysterical convulsions	52	13.00
Hemicrania	45	11.25
General feeling of weakness	37	9.25
Præcordial Angst and dyspnœa	23	5.75
Feeling of cold	22	5.50
Depression	22	5.5
Hyperæsthesia and anæsthesia of peripheral nerves	15	3.75
Vertigo	8	2.00
Mastodynia	5	1.25
Chorea	4	1.00
Memory defects	4	1.00

	Cases.	Per Cent.
Epileptic attacks	2	.5
Feeling of lightness	2	.50
Catalepsy	2	.50
Aphonia	1	.25
Trismus	1	.25
Feeling of emptiness	1	.25

Where a physical disease co-exists with a depressing psychosis, the patient may entirely lose sight of his mental trouble and become so absorbed in his physical condition that in a short time firm rooted somatic delusions are elaborated.

Somatic delusions belong primarily to the various states of depression. They may arise in patients who are depressed and agitated, and who spend much time in self-analysis. If the depression is accompanied by a suicidal attempt by taking poison, etc., the patient is thereafter convinced that his throat and stomach are damaged beyond repair.

In psychoses with a paranoic coloring, somatic ideas are more commonly engrafted upon some delusion. The patients experience peculiar feelings which are attributed to electricity, hypnotism, etc., and are associated in their minds at once with the other persecutory ideas. In alcoholic psychoses of this nature, various paræsthesias or pains along the nerve trunks, may underlie these ideas. At times they may develop insidiously. Often tactile hallucinations, or paræsthesias of a sexual nature, receive faulty interpretations on the basis of other delusions. The occurrence of hallucinations of taste and smell in connection with delusions of a sexual nature is very striking.

Somatic ideas are at times very changeable, depending upon the environments, or they may even be a part of a general euphoric condition, pleasant in nature, and associated with other delusions of grandeur, centering about their own personality. Klein (7) sought to refer the euphoristic states of general paralysis to paræsthesias of an agreeable nature.

Previous existing physical disease may be the direct cause of these ideas, and lighter forms of peculiar subjective sensations, such as hot flashes, numbness and prickling may exist with a real basis, but on a delusional principle. Where a peculiar sensation is experienced by a paranoic patient, however mild or changeable,

it is another link in the chain of persecution. These somatic ideas usually appear late in paranoic conditions and some unknown and mysterious force is sought in explanation of the sensations. Somatic ideas are often transitory symptoms which may be fabrications, pure and simple, or which may have as a result a prominent though short period of affect without insight. The expression of these ideas may be only once or variable, showing momentary concentration of some thought to the ego.

Wollenberg (8) divides hypochondriacal ideas into two large groups, viz., the constitutional and the accidental—the latter he subdivides into those originating from (1) abnormal ideas; (2) those following some exhaustion, or illness; and (3) those depending on a disturbance of the cœnæsthesia. Those depending on a disturbance of the cœnæthesia are really physiological, inasmuch as they depend upon natural changes such as the climacterium. Our cases are all of the accidental type. They are, however, largely the result of some functional brain alteration where normal physiological sensations are transformed into pathological somatic ideas; in other words, they are illusions of feeling.

While pleasure and pain are the most marked phases of pure subjectivity, somatic sensations in the insane, as a rule, may be said to be those of discomfort, pain, and anguish, especially those relating to internal sensations, where the feelings are with difficulty located definitely, but which are referred to some special organ or region, depending upon the enlivened imagination and defective judgment of a diseased mentality. Even where organs are involved which, when stimulated, produce pleasurable or voluptuous sensations in the normal individual, the feeling is one of irritation and is coupled with abuse on a delusional basis, and referred to outside influences, such as electrical, hypnotic, etc. These sensations, when referring to the sexual organs, are invariably attributed to external causes, on a basis of delusions of persecution and are reacted to by threats, violence, and irritability. They are complained of freely with a view of apprehending the perpetrator and of stopping the abuse. Unfortunately these delusions are very stable and in themselves suggest a chronic condition and an unfavorable outcome and are found in the degenerative psychoses, appearing early in dementia præcox of

the paranoic type, in the paranoic states following the involution and less commonly in alcoholics. In the latter the brain itself is commonly the seat of peculiar sensations. It is acted upon by a machine or some electrical device which is often blamed for the transmission of the hallucinations, putting the voices into the ears and projecting faces and pictures before the eyes.

The cutaneous sensations are usually quite definitely localized and more acutely painful than the visceral feelings and are sometimes limited to regions of certain nerve distributions. The various paræsthesias which may occur in normal individuals are magnified and misinterpreted and the explanation is sought in electrical and other influences in the hands of an enemy. Neuritis in the course of alcoholic psychoses, also gastric crises and girdle pains in tabetic general paralytics, are examples of this type. Often rheumatic pains in the joints are misinterpreted on a delusional basis, as electric shocks thrown upon the patient by unseen persecutors.

The milder sensations in the skin gradually merge into slight tactile hallucinations and sensory illusions with mild reaction on the part of the patient. Later the delusion may become so fixed and tenacious that it is accepted as a fact without further reasoning, even if abnormal sensations no longer exist. Thus a patient may pass through the acute phase of a beginning dementia præcox, stubbornly refusing food because he has no stomach, and leading a wretched and miserable existence with great depression and worry. Gradually he lapses into a more indifferent state, perhaps passes the stomach tube on himself for his daily food, and soon begins to eat. The former domineering idea is dropped from the foreground and a condition of apathy and dementia supervenes with but little thought and concern about himself. If asked about his stomach he may answer with a smile, "I have none," but will continue to eat. Again there are deteriorated patients who get on well from day to day but who show a multiplicity of somatic delusions, transitory and changeable in character, without affect and without altering much the course of their daily life; whose physical health is good, but whose minds are in a dilapidated condition; whose judgment is faulty and who are unable to draw logical conclusions or deductions. Their mental sphere is so narrow as to misinterpret occurrences and actions of others;

center them upon themselves and the distorted imagination produces, among other ideas, delusions somatic in nature.

The more highly specialized senses,—hearing, sight, taste, and smell,—may develop a very prominent hallucinosis, but are less often accompanied by somatic or subjective sensations. To an olfactory hallucination may be added a feeling of irritation of the nasal mucous membrane, by some imaginary powder thrown into the air. A biting and gnawing of the tongue is often associated with hallucinations of taste, especially when underlying delusions of poisoning.

It is rarer, however, to have pronounced somatic sensations of the eyes and ears coincident with visual or auditory hallucinations. At the most a rumbling sensation is felt in the ear, or a blinding light is experienced in the eye.

Edmund Parrish (9) says that hallucinations of taste and smell are very difficult to distinguish from illusions and also from hyperæsthesia of these sensations, and, on the whole, are infrequent: for instance, resulting from disease of the mouth or tongue. Olfactory hallucinations are seldom of an agreeable nature. They seldom appear alone but are frequently associated with other sensory fallacies. They are frequently found in local diseases of the ovaries and of the reproductive organs in general.

The somatic ideas of the paranoic states have a strong delusional basis with but little or no actual physical disease of the parts involved. The ideas are very flexible and the details are altered or receive new interpretations under different environments. Thus strong hypnotic or electrical influences often cease abruptly for a brief period after the admission to the hospital. Soon, however, a new system is evolved or the old one is more elaborated. Either former persecutors are able to transmit their powers over long distances, or they use the nurses, physicians, etc., as their agents, or new tortures are inflicted by those who come in daily contact with the patient. By gradual evolution the original delusion may no longer exist.

Hallucinations of the cutaneous sensibility, of the organic senses, and the like, are not easily distinguished from paræsthesias and however important they may be in building up the mental delusions they are, as a rule, too vague to influence the content of thought directly. It is only when a darkened intelligence

seizes them as a basis for a new conception of the ego and the environment that they become of primary significance.

In the words of Ribot (10), it is the organic sense, the sense of the body, usually vague and obscure, but at times clear in all of us, that excites in each animal the basis for its psychic individuality.

Attention depends on the mental state. Pathologically, spontaneous attention may become a fixed idea. The center of attraction is established which little by little gains complete control of the consciousness; then it grows to be a perpetual pre-occupation, an incessant inception of the state of each organ and the products of each function.

The ideas founded on a general breakdown of the body, a definite disease, pain, or some distinct physical etiology are accompanied by a deep depression, fear, anxiety, and a hypochondriacal condition and are not influenced by a change of environment. The patient is very introspective and gives as proof of his particular assertions the general emaciation of his body. Coincident with physical improvement there is usually a parallel disappearance of the somatic delusions. Such ideas, in themselves, call for a favorable prognosis modified by the general mental and physical state of the patient.

While nearly all forms of mental disease show somatic traits, from the mildest paræsthesias to the more profound ideas of absent vicera and *délire de negation*, certain types seem to conform to a definite symptom-complex.

A study of the following table, which comprises an analysis of 1564 cases, will serve to show the frequency of somatic ideas in the various psychoses. In 221 cases, or a little over 12 per cent, ideas of a hypochondriacal nature were present, which in many instances bore an intimate and important relation to the other symptoms.

Psychoses.	No. of cases examined.	Somatic ideas present.	Per cent.
Dementia præcox	357	80	22.40
General paralysis	191	18	9.42
Senile dementia	169	8	4.73
Paranoic condition	157	41	26.11
Manic-depressive insanity	106	7	6.60
Alcoholic insanity	106	19	17.92

Psychoses.	No. of cases examined.	Somatic ideas present.	Per cent.
Organic dementia	59	1	1.69
Melancholia	52	42	80.76
Epileptic insanity	33	1	3.03
Imbecility	25	—	—
Constitutional inferiority	24	2	8.33
Delirium (various forms)	24	1	4.16
Habitual drunkards	14	—	—
Polyneuritic psychoses	7	1	14.28
Morphinism	5	—	—
Traumatic insanity	5	—	—
Hysterical insanity	5	—	—
Huntington's chorea	4	—	—
Total	1564	221	12.85

To let 12.85 per cent represent the number of times somatic ideas were found, is subject to some error. It represents accurately the number as far as the records show, but many of these patients have reached a stable state of deterioration and either the history of the onset is not accessible or they were residents of the hospital for years before accurate records were kept. In many of these patients, no doubt, somatic ideas were relatively as prominent as many other unrecorded delusions which must have existed in some form at the beginning of the psychosis.

MELANCHOLIA.—In the differential diagnosis of melancholia from other psychoses the question is often asked, "Has the patient any somatic ideas?" which thereby implies that the presence of these ideas establishes beyond any doubt the existence of melancholia. The question should rather be: "What is the nature of the somatic ideas; what part do they play; what relation are these ideas to the physical condition of the patient; how much affect is shown; and how does the patient react to these ideas?" With the extreme self-absorption and self-analysis, apprehension and worry over himself, we expect the patient suffering from melancholia to worry over his physical as well as mental welfare and this is what actually occurs. Ill health may underlie the initial anxiety and apprehension of the patient. Often the mental agitation begins insidiously. The patient's mind is in a state of unrest, the origin, cause and nature of which even he cannot determine. He worries more and more. Some cause must be found. Often

he remembers some trivial misdeed of his youth, dwells upon it and soon convinces himself that he committed a great sin and this is the cause of his mental state. Another worries over home and children, fears something will befall them, that he cannot provide food for them, denies himself proper food, becomes a physical wreck and rapidly loses ground. With the wasting of his body he is able to prove that some physical cause is at the base of his trouble. With his mind centered on himself, the smallest ache, or pain, or feeling of indisposition, is greatly exaggerated in his own mind. Symptoms referable to the alimentary tract are apt to be present. Under normal conditions the patient might diagnose his case as one of "indigestion" or "biliousness," but now it has a more serious aspect. Food distresses him; something must be wrong; he is constipated and sure that the food is never digested and does not reach the intestines; perhaps the food does not reach his stomach; perhaps it drops into a hollow space; perhaps the stomach is closed off, etc. He is soon convinced that one of these must be the cause, and though the patient's intellect may be unimpaired and his judgment in other matters good, he cannot be shaken in his belief that something fearful ails him. At the height of these delusions, when the mind is centered on the ego, ideas emanating from without are absent or in the background. I have in mind a patient who was anxious and depressed, attempted suicide by drinking wood alcohol, worried over it and refused almost all nourishment for months because the wood alcohol caused her throat to contract and burned out her stomach and bowels. She came to the hospital, retained this idea until her husband visited her. After he left, she was confident that he was retained in the hospital and was being tortured. She heard him call her and heard his tormentors killing him, etc. She made no more mention of her somatic ideas but suddenly developed a prominent hallucinosis. She began to eat better, improved physically and mentally. When her husband visited her again she was allowed to see him leave the hospital and saw him walk away. She was then convinced and made a speedy recovery. During her psychosis she showed extreme affect in reaction to these ideas but after her recovery laughed at the absurdity of them. The hallucinosis began abruptly as the somatic ideas disappeared. They did not occur together. The

only symptom common to both was the general worry, agitation, and apprehension, first for herself, later for her husband.

Less often delusions of a somatic nature develop rather suddenly. While worrying about himself the patient suddenly conceives the idea that there is a hole in his stomach, etc., and adheres to the idea with the same tenacity that is found in those patients in whom there was a gradual unfolding and elaboration of these ideas.

On the whole the prognosis in these cases is very favorable, especially where the ideas appear early, are in the foreground and not associated with hallucinations and prominent self-accusations; but they are dangerous, inasmuch as food refusal often accompanies these ideas and the debilitated condition soon leads to some fatal intercurrent disease. Where there is a gradual elaboration, the delusions are usually very stable, especially if the patients are weakened and run down, and the wasting of flesh proves to them the truth of the statement. In milder cases a generalization of the somatic ideas exists. A vague, indefinite depression and anxiety and some idea of ill health may exist.

Somatic ideas are sometimes the foremost symptom of melancholia. The sensations arise from within the body and in Wernicke's sense, are pure somatopsychoses. In the following instances there is a direct relation of the somatic ideas to previous physical states.

One patient with arteriosclerosis and mitral insufficiency, and suffering from hematuria, complained permanently with great affect that his heart did not beat; he had no pulse; worried over his kidneys; said he had syphilis and that his head was filled with bugs. Another patient became very much worried and depressed after an operation for cancer of the right breast. She attempted suicide because of an over-powering fear that she also had cancer of the stomach.

One patient was left very weak after a prolonged attack of influenza; a mild depression with a general hypochondriacal condition followed. Patent medicines were taken for stomach trouble, and finally firm-rooted ideas of poisoning and strong somatic ideas developed. Stomach and bowels gone; cannot swallow; food does no good, etc. In this case there was a slow

development of symptoms (2 years). Little affect was shown and a mild deterioration took place.

Another patient began to worry greatly over her condition after she had undergone an ovariotomy and ventral suspension. She felt as if there were snakes in her abdomen and that her stomach had fallen to pieces. She displayed a marked affect, but improved greatly.

A similar case followed an operation for hemorrhoids. The patient thought that her bowels and stomach were full of fleas and insects, and had prominent delusions of reference and poisoning. She became irritable and showed a permanent strong reaction.

A patient suffering from uterine fibroids merged from a depressed condition into a paranoic state with prominent sexual delusions, also olfactory and gustatory hallucinations. She believed herself to be pregnant and thought that the tumor was decaying and passing away in the stools, causing the foul odor. These ideas remained permanent with a reaction of scolding and threatening. After taking a tonic which she knew contained iron, another patient became depressed and agitated. She refused food because the iron closed up her throat and caused her to burst open. She showed some improvement.

During the course of an anxious depression, another patient began to worry about his hernia. He refused food because he was " all swelled up " and was " burning up inside." At the same time he feared his home and family were being burned up. In a very apprehensive patient who had prominent auditory hallucinations and continually wailed:" I believe there is something in my stomach; my food doesn't pass through; it's rotten," there was discovered at autopsy a cancer of the pylorus!

In some cases, however, pronounced physical diseases exist, which are totally ignored by the patient who evidently centers all his complaints about some previous pet idea. This reaction is more prominent in paranoic conditions. Thus a patient with overpowering ideas that her stomach was closed, her bowels never moved, her eyes were leaving, etc., never complained of the distressing cough, and dyspnœa of advanced pulmonary tuberculosis from which she was suffering.

Another patient disregarded completely the rapid emaciation

and presence of cancer of the liver and gall-bladder, which appeared to cause great suffering, but retained to the end the ideas that she could never die, that she was a spirit, full of poisons and animals enough to kill all nations, brain gone and head full of hot sand and ashes, etc.

A patient suffering from asthma complained continually of her stomach and bowels and knew she could never die, but said nothing of her actual sickness.

Occasionally we meet with patients who suffer from attacks of cardiac incompensation which are accompanied by a feeling of "Angst" and great agitation and depression. One patient has been at this hospital during several such attacks. The mental symptoms subsided each time with the improvement of the heart.

The story which we hear from patients in whom the evolution of the somatic ideas has been gradual, i. e., in whom there has been a general disturbance of the cœnæsthesia, without any tangible basis, is much the same in every patient, differing only in degree. The visceral organs are complained of most constantly but the ideas are usually extremely absurd. There is a strong affect shown and the ideas are tenaciously held.

The somatic ideas present in the depressed phases of cases of manic-depressive insanity, while relatively uncommon, are very apt to originate from some occurrence or illness. A patient who accidentally swallowed a needle, took salts. This was supposed to have rusted the needle and caused the blood to decay. One patient complained that her eyes had sunk deep into her head after she had taken gas for extraction of teeth. Another patient was constipated and took 6 cathartic pills. A firm belief remained that the bowels were ruptured and the legs were rotting off.

Ideas of a somatic nature were absent in all manic phases of manic-depressive insanity.

DEMENTIA PRÆCOX.—In dementia præcox there is a dissolution of mind, parallel with the body, but neither is recognized. Comparative weights of the brain and other organs show a regression from the normal. This fact, however, cannot be correlated with the somatic ideas. Cases of dementia præcox show a multiplicity of ideas which are usually adhered to with considerable affect and elaborated on a basis of delusions. Patients often have a somato-psychic feeling of being drawn out,

pulled out, muscles torn away, blood withdrawn, etc. These ideas often refer to beauty, face, or especially to the sexual organs. The affect is not so much in the form of worry, anxiety, depression, and hopelessness as of irritability, violence, and obscenity; not pleading for help or to be killed, but rather threatening if the supposed abuse is not stopped. They are not so apt to arise from actual physical disease but are often formed on the basis of delusions of poisoning through medicine, electricity or other power. The prognosis is not good. Eventually the delusion will cease, but dementia takes its place. The reaction is often quite marked in refusing food, but perhaps more from the idea of poisoning which is really at the root. As is often the case, the throat, stomach, and bowels first attract the patient's attention, or the idea may refer to the brain or sexual organs only, but the complaints vary. One thing to-day; another to-morrow. The absurdity never strikes the patient; attempts to reason are futile. He has no insight whatever. There is usually no foundation for his ideas and they are not within the bounds of possibilities. They can only in a vague way be said to be evidence or manifestations of a depressed condition, since they are associated more with anger than with sadness. The ideas originate usually when the disease is well-advanced and may be looked upon more as a sign of deterioration and an evidence of lack of judgment.

The scarcity of somatic ideas in old demented cases, following dementia præcox and other dementing psychoses, is very noticeable and natural. The patient has reached the stage of a vegetative existence. Nothing worries him, as he is too indifferent to think of his physical or mental condition. If somatic ideas were present in the beginning, they have faded with the other delusions. They are more persistent in psychoses where no deterioration is evident, where the intellect is unimpaired but where the judgment is faulty.

The somatic ideas in dementia præcox are often associated with a general alteration of the surroundings. Everything appears changed and the patient himself is different from formerly. He is an automaton, represents some other person, etc.

It is rare that a case of dementia præcox bases his ideas on some definite physical cause, or that such delusions are precipitated by some disease. If bodily disease co-exists with somatic

delusions, the latter rarely have a direct bearing on the former. In the following two cases a psychosis seems to have been precipitated by external causes, and the contents of the delusions stand in close relation to the cause. In one patient, prominent hallucinations of smell followed poisoning by illuminating gas. There was also a feeling of the brain shaking in the head. The patient developed prominent delusions of influence and persecution, became expansive and reacted to her ideas by threats, noise, and violence.

The other patient had had an operation on her eyes and immediately became very suspicious of the physicians and nurses whom she suspected of cutting her body to pieces, separating soul from body, taking out her eyes, etc. After some time there was complete change of personality; she was Christ and the entire surroundings were unnatural; those about her were spirits, etc. A marked deterioration ensued.

The following examples are perhaps less specific and possibly largely accidental. A general hypochondriacal condition supervened in a patient who was anæmic and debilitated, and a depressed affect was manifest in reaction thereto; however, her complaints were absurd and variable. One day her head kept moving and her throat was stopped up; the next day wind collected about her heart, then she had brain fever, and so on. Another patient became worried and depressed during her first pregnancy, thought she had the worst diseases imaginable and was covered with filth. A strong depressed affect was present and rapid deterioration followed.

Many cases of dementia præcox attribute their mental and physical weakness to masturbation, and most of them are familiar with cheap literature on the subject. The onset is usually with worry and depression, the "mind becomes weak" and the "system run down." In the statements of various patients the following evil effects were thought to have resulted from masturbation: "paralysis of the right side; weight in the stomach; heart feeble; system loose and flabby; pressure on the brain which scatters the thoughts; head bulges; stomach, intestines, and nervous system in bad condition; burning up inside; feeling as if brain was leaving; becoming tall and shrinking to nothing; blood not circulating

right; change of identity; breasts bitten and milked; feeling of pregnancy," etc.

The reaction to such statements is indifferent and apathetic. The sensations may be spoken of often with but little affect or depression, but are sometimes attributed to electrical and hypnotic influences and intellectual as well as emotional deterioration is rapid.

Menstrual disorders similarly affect the content of the delusions. The patient often fears she is pregnant and frequently experiences peculiar abuses at night.

The following statements of patients, in whom no physical cause for the somatic delusion can be demonstrated, show extreme absurdity and variability. Often they are recited with a smile, usually with indifference and at times when coupled with delusions, they are accompanied by threats and violence.

I. "Fear of bleeding to death when urinating; throat filled up; thoughts flow from wrists; thoughts leave with breath; drawn up and made to go through peculiar motions."

II. "Bones and organs destroyed; spine worked down into rectum where he feels it; life falling through rectum; fæces full of human beings." (Apparently firm belief in them but inadequate reaction.)

III. "Blood goes out into atmosphere; head knocked off; shoulders gone; patients steal his blood; pieces taken out of his neck. Blown-up feeling; filled with tacks and wires." (Advanced deterioration.)

IV. "Losing his senses and parts of his body; pieces of flesh fall to the floor; holes in abdomen and things fall out." (Somatic ideas disappeared and pronounced apathy and dementia ensued.)

V. "Becoming ugly; eyes not right; skin bad; hair on face." (Seclusive reaction at first, later dementia.)

Sensations of the following nature are attributed to electrical and other outside influences, and are accompanied by an aggressive threatening attitude.

"Muscles are torn from the back; tormented by pulling the arteries and drawing on the brain; peculiar forces affect tongue, eyes, ears, and character; muscles of neck, arms, and back are pulled; heart made to beat too fast; foam put into mouth; brain removed; body is used to bear children for others; machines

break up her body; bore holes in her head; people put through her; heart jumps up and down; insides taken out every night," etc.

The source of such delusions is difficult to explain. When they are stable they might be traced to some peculiar disturbance of the cœnæsthesia, but where they are changeable, they are probably random statements which are of no special consequence to the patient, but happen to follow in this particular channel and are evidence of a deteriorating process.

ALCOHOLIC PSYCHOSES.—Chronic alcoholics who have reached a paranoic stage and whose existence is miserable on account of feelings of persecution, influence, and auditory hallucinations, often feel that electricity, hypnotism, or some machine, is working on them. They are suspicious and soon have evolved a complex system of delusions. Many, though not expressing some concrete somatic idea, suffer greatly from electric currents, machines and other power, giving them shocks, burning them, etc. These often refer to the stomach and brain. Usually they are subjective sensations of the skin, which in some cases may be attributed to the prickling and numbness which accompany an alcoholic neuritis. A quite common origin of their hallucinations is from some machine, person, or little devils in the stomach, heart, lungs, brain, etc. These ideas are freely spoken of and complained of, and reacted to by threats and often violence. Frequently these feelings give rise to hallucinations with a religious coloring, that is, spirits, God and Christ are inside of them and speak through them. The alcoholic patients in whom somatic ideas are not apt to occur are those who have gone into a stable state of simple deterioration and who have escaped the more acute hallucinatory or paranoic conditions.

One patient in a chronic hallucinatory condition suffered much from gaseous eructations which he claimed "helped to start the voices along from the stomach." During an acute hallucinatory depression another patient complained that his bowels are all stopped up and "the devil's imp is in my stomach." His ideas resembled those of other depressed psychoses. In the following statements which represent the general type of somatic delusions in alcoholic subjects, we see a distinct difference. The ideas are closely interwoven with delusions of influence, electricity, hypno-

tism, and persecution and the reaction is one of fear, anger, threats, and violence.

"Enemies take the breath away; words are taken out of the mouth; kinetoscope works on the brain; machines take the strength away; body over-charged with electricity; rank smells come from the body; devils and spirits of hell in the stomach trying to cut out the heart; devils fly in and out of the mouth, ears, and eyes, and speak from within the body; body full of rats; head full of cockroaches; fire comes from the mouth," etc. These symptoms are most prominent in the acute hallucinatory conditions or in cases of protracted delirium tremens. In the chronic alcoholic psychoses, which have had a paranoic evolution, cutaneous paræsthesias of various forms, may remain which are interpreted as pains, currents, shocks, crawling of insects, pricking of needles, etc., resulting from hypnotism, electricity, etc.

GENERAL PARALYSIS.—In general paralysis the expression of somatic ideas differs markedly in form, depending on the mental condition; whether depressed or expansive, or whether in the beginning of the disease or at its height. In the beginning of general paralysis, especially the depressed states, there is a close analogy with the somatic ideas of melancholia or other depressing psychoses. They are apt to be very firm and stable and are often alluded to in a fragmentary manner after the patient has passed deep into dementia. They may be the dominating thought in the patient's mind and may have a real basis, such as an injury or disease; they may be on a delusional or hallucinatory basis, or mere temporary result of fancy. Considerable affect may be shown in worrying or in suicidal attempts. Frequently a demented and formerly expansive general paralytic may refer to wonderful machines in his heart or body, controlling everything, sun, moon, and stars, and he may often speak of it repeatedly but it is only a form of his feeling of grandeur. He does not show the least affect. He may frequently speak of being dead or dying, but these ideas are not fixed and might readily be kindled into transitory expressions of a somatic nature. Although in general paralysis there may be a very gradual onset with depression and hypochondriacal ideas, the actual expression of somatic ideas is comparatively rare. The depressed state may be steady and progressive and if the somatic ideas appear in the onset they

may be clung to for a long time. Gradually with dementia they drop out or perhaps later are spoken of from time to time with an affect of grandeur and expansiveness rather than the original depressed reaction.

In the following examples of somatic ideas in cases of general paralysis beginning with depression, we at once see a close resemblance to those of all other depressed affects.

The patient cannot breathe or speak; the throat is twisted; the bowels never move; stomach gone; throat plugged up; genitals wasted away; cannot sleep; hands and feet gone; saliva dried up; muscles stiff like wood; consumption of blood; shrinking away daily, etc. These delusions give no clew as to the further course of the disease, as some become rapidly demented and others go into an expansive stage.

Often the ideas have an absurd and grandiose coloring; thus a patient who became depressed after a shock in the beginning of the psychosis claimed that electricity caused the shock. He firmly believed that the electricity clutched his heart and that it was used as a switchboard; that his stomach was opened and closed by the influence of passing locomotives. In addition he claimed that there was a talking machine in his stomach from which voices emanated. (There had been excessive alcoholism.)

Another patient repeated gleefully that he was 7 feet tall and God had made him little; another had a wonderful machine in his heart which controlled sun, moon, and stars. Usually these ideas are alluded to in a fragmentary way in the course of other expansive utterances.

PARANOIC CONDITION.—The somatic ideas resemble those of the chronic alcoholic psychoses; however, the internal organs are seldom the seat of such feelings, but the sensations are said to be "put on" the patient, etc., by some external power or influence. These ideas are closely coupled with persecutory delusions and hallucinations which give an actual pain or sensation a fantastic interpretation. Frequently they are sexual in nature and are accompanied by hallucinations of taste and smell. The reaction to these delusions is violent and threatening. The patient is surly and suspicious and shows no depressed affect. The delusions are often colored by the environment. They are permanent, but the details are changed under varying conditions. New

sensations may arise and the old ones may be discarded, but as in the other delusions, the general system of the ideas is retained. Thus in a patient with well-marked persecutory delusions there developed rheumatism followed by an apoplectic attack. This was promptly referred to electrical influence. Every slight discomfort or illness in another patient was always said to be due to batteries, while at other times, no peculiar sensations could be elicited. One patient who had occasional attacks of cardiac incompensation explained the discomfort on the basis of electrical influence. The electricity was said to snap the veins in her head; it played on her heart and suffocated her; gas dried up her blood and the electricity caused salivation. In one patient there was a distinct bradycardia with attacks of syncope. At these times she complained of being crushed, put under ether, having her arteries drawn out, etc.

As a general rule these ideas vary greatly in the same individual and, if extensive, have a sexual coloring. This is exemplified in the following instance. The patient had prominent hallucinations of hearing, sight, touch, taste, and smell, and delusions of persecution and electrical influence. Her nose and mouth were burned every night by potash which was thrown into the room, heat runs through the back and stomach; she is tormented during the day by odors and pains; rank odors arise when people come near to her; she is made pregnant by wrong means and nightly the electricity causes distressing sexual feelings. These ideas are continually reacted to and the patient remains by herself much of the time.

The following tables show the frequency with which the sensations are referred to definite regions.

The viscera, bones, nerves, brain, etc., were mentioned as a seat of peculiar feelings 317 times:

Head and brain	58 times.	Blood	24 times.
Bowels	52 "	Lungs	12 "
Stomach	50 "	Kidneys	10 "
Viscera in general	35 "	Bones	8 "
Heart	35 "	Spine	2 "
Throat	30 "	Nerves	1 "

The organs of special sense and the muscular and cutaneous sensations were involved 161 times.

Mouth	37 times.	Ears	4 times.
Eyes	24 "	Muscular sensations	44 "
Nose	17 "	Cutaneous sensations	35 "

A definite disease was complained of 17 times.

Tumors	6 times.	Syphilis	2 times.
General weakness	4 "	Tuberculosis	1 "
Paralysis	4 "		

In 49 instances there was said to be an invasion of the body by animals, spirits, etc.

Animals	26 times.	Voices or people within the body	6 times.
Foreign bodies	11 "	Spirits	6 "

The frequency with which somatic delusions are referred to outside influences is shown in the fact that electricity, hypnotism, etc., were said to produce the sensations in 85 cases.

Electricity	30 times.	Machines	4 times.
Poisoning	24 "	Anæsthetics	4 "
Hypnotism and vague feelings of influence	22 "	Kinetoscope	1 "

In 45 cases sensations of a sexual nature were experienced.

It is rather surprising to find that definite diseases were complained of in a comparatively small number of cases, while isolated symptoms were in such preponderance. This is better understood when we see that a large per cent of the feelings were supposed to have originated from extraneous causes and were probably experienced only when these factors were at work. In other cases the general depression was looked upon as a disease of which the somatic feelings were a symptom or cause. The patients as a rule have lost the ability to analyze and criticise the obsessions and to associate the feelings properly, and abandon themselves completely to the prepossessing ideas. This predominent idea becomes fixed and cannot be dislodged from the consciousness,—a state which Ribot calls hypertrophy of attention.

It is not an uncommon experience to find unilateral hallucinations of hearing, affecting the diseased ear in cases of one-sided deafness in which the peripheral irritation undoubtedly excites the hallucinations. These hallucinations often disappear under local treatment; however, from everyday experience it is seen that such examples are in the minority and many hallucinations have undoubtedly a central origin. If we find no peripheral cause for hypochondriacal ideas, we may consider many of these as sensations likewise projected from the center.

Cases of actual hypochondria with feelings of double personality and peculiar muscular sensations are rare and may be based on a disturbance of the cœnæsthesia with delusions centering about the patient's body. The body is not altered by excitement or depression, but if it persists a new psychical and mental state is produced. The graver forms of somatic ideas gradually merge into double personality and *délire de negation.*

For a psychological analysis of hypochondriacal ideas, with especial reference to the disturbance of cœnæsthesia, the reader is referred to the article of G. Deny and P. Camus (11). They point out that the sensory perceptions have the organic sensations for an indispensable concomitant. A suppression or non-utilization by the consciousness of a group of these organic sensations (muscular, visceral, articular), resulting from a disturbance of association, is sufficient to bring about in our cœnæsthesia, a more or less profound perturbation which may go on to a single doubt, or to a complete negation of our bodily existence.

GENERAL SUMMARY.

Psychosis.	Per cent showing somatic ideas.	Relation of somatic ideas to physical condition.	Reaction of the patient to the somatic idea.
Melancholia	80.76%	Bodily disease often fundamental; onset less often insidious, rarely on delusional basis.	Sadness, depression, worry, anxiety, hopelessness, despair.
Paranoic condition	26.11%	Rare physical foundation; occasionally dependent on paræsthesias; usually variable and on delusional basis.	Suspicion, scolding, irritability, threatening and violent.
Dementia præcox	22.40%	Rare physical etiology; often insidious onset; usually on delusional basis, variable and absurd, often referable to masturbation.	If on delusional basis, anger, threats, violence and obscenity; less often worry and depression; usually reaction inadequate; indifferent, silly, at times apathetic and scolding.
Alcoholic psychoses (chiefly paranoic)	17.92%	Often dependent on gastric disturbances, neuritic disorders, paræsthesias, etc., usually explained on delusional basis.	Fear, scolding, threatening and violent.
General paralysis (with onset of depression)	9.42%	Resembles melancholia. Later may be grandiose and fragmentary.	At onset worry and depression. If grandiose, exaltation and euphoria.
Manic depressive insanity (depressed phases)	.....	When present are apt to bear direct relation to some occurrence or physical disease.	Depression, sadness, worry, hopelessness.

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OBSERVATIONS ON GANSER'S SYMPTOM.

By A. H. RUGGLES, A. B.,

Butler Hospital, Providence, R. I.

In 1897, Ganser[1] described certain pathological phenomena which he considered peculiar to hysterical conditions and which have since been called *Ganser's Symptom.* Much discussion has been aroused, especially in Germany, both as to the interpretation of the symptom and as to the conditions in which it may be found. It is important, in the first place, to distinguish between *Ganser's Symptom* and *Ganser's Symptom-complex* (Dämmerzustand) or confusional state. Ganser's description of the symptom-complex was of a condition of hallucinatory confusion beginning acutely, developing rapidly, and quickly diminishing; it is accompanied by hysterical manifestations and is followed by amnesia for the attack; it is especially characterized by the symptom designated *Danebenreden,* a word for which there is no English equivalent, but which might be called *the symptom of approximate answers*—and which is the Ganser's symptom, properly speaking.

The characteristic of the symptom, according to Moeli[2] and Ganser, is that: *a simple question having been asked, the patient's answer, though incorrect, shows a somewhat near relation to the correct reply and to the question itself, a relation indicating that the sense of the question has been comprehended and, moreover, that the general circle of ideas to which the correct answer belongs has been aroused, even if the single correct idea has not been raised to conscious existence.* For example: *Question,* How many months are there in a year? *Answer,* Four. *Ques.* What day comes after Sunday? *Ans.* Tuesday. *Ques.* What is this? (table) *Ans.* A chair. When this type of answer follows a whole series of questions, the symptom is considered typical and is regarded by Ganser as an hysterical stigma.

According to Henneberg,[3] cases which correspond exactly to Ganser's description of the symptom-complex are very rare, and

he doubts if it is worth while to retain such a term as *the Ganser Confusional State;* it is the symptom of *Danebenreden* which has produced discussion, and it is this symptom to which there is reference in this paper. The intention is to present here, briefly, an outline of the various opinions given as to the significance of *Ganser's Sign,* adding thereto the interpretation of the answers given to questions put to 170 patients of different varieties at Butler Hospital.

Vorster[4] believes that *Danebenreden* is very frequently found in catatonia and occurs in about 21 per cent of cases, but from his description it is evident that he does not distinguish sharply between Ganser's symptom and the frequent senseless and inadequate answers of the catatonic which bear no relation to the question that has been asked, or are related to it only by some accidental word which appears both in question and answer.

Henneberg found the symptom not only in hysteria, stupor, and dreamy states, but in manic conditions, melancholia and dementia præcox. He says it may also be found in drunkenness and in normal persons when perplexed and also when they intentionally give foolish answers to foolish questions. It is occasionally found with hysterical or hypochondriacal patients who complain much of loss of memory and yet with whom, perhaps, it is difficult to determine the existence of actual mental weakness, in the sense of a permanent defect.

Other observers have noted the symptom in imbeciles and dements when anxious or excited, and have found that it occurs much more frequently in criminal classes than in the non-criminal. Manic cases often show *Danebenreden* as the result of voluntary effort to make jokes.

Nissl[5] has said that it is very frequent in catatonic negativism. Ganser replies to this by saying that it is a symptom of an *hysterical* condition *in* catatonia.

Raecke[6] thought it merely a stigma of hysteria.

Soukhamoff[7] believes it to be an hysterical stigma, but thinks it may also appear in dementia præcox. He considers it an associational disorder, a partial memory disarrangement.

In the series of 170 cases examined by the writer, 110 answered the questions correctly; 40 answered more than half correctly, and 17 answered more than half incorrectly for reasons that it is not

within the scope of this paper to analyze, as the typical Ganser's symptom was not exhibited.

Three cases showed *Danebenreden* and these cases were investigated further; an analysis may add something to the numerous interpretations already given.

Case I. Male; age 39; diagnosis: dementia præcox of hebephrenic type.

Ques.—How many months in a year?	*Ans.*—Forgotten.
Number of cents in a dollar?	50
What year is it?	1899.
How many days in the week?	6.
6 x 7?	44.
What is this coin (half dollar)?	$1.10.
Count to ten.	10, 2, 3, 5, 7, 9, 10.
Where are you?	With Ives (incorrect).
What is this (rubber fountain pen)?	Rubber pen.
What is this (sheet of paper)?	Ft. Adams.
How many fingers have I up (3)?	10.
How many eyes has a man?	4.
What is the day after Sunday?	Tuesday.

At a later examination, by another examiner, the patient was given a series of complicated and comprehensive mental tests. His effort throughout was good, comprehension excellent, and attention was held very closely. The average of the tests was far below normal but moderately good for a patient of the dementia type. At the end of this examination the patient was shown various objects and named them all correctly. Being asked to tell the year he answered, "Well, I'll tell you the same as I told the other man." After a pause says, "1905." (Well, is that the same you told the other man?) "No. I told him it was 1899." (How long have you been here?) "Over 6 years." (When did you come?) "August 8th, 1899." (Correct.) (How many days are there in a week?) "6." On being asked several times how many days there were in a week finally said, "If I answer straight I suppose there are 7." (What is the day after Sunday?) "Tuesday." (Is that the way you answered the other man?) "Yes." (Well, is it correct?) "Well, I suppose the day after Sunday is Monday." (Count to 10.) After much preliminary talk, holds up his finger and counts ten correctly. (Did you count correctly when you were asked to before?) "No,

I didn't." (Now, Mr. L., tell me why you counted so foolishly before when you can count correctly?) "I wasn't paying much attention." (What place is this?) "Butler Hospital for the Insane." (Is that the answer you gave when asked before?) "No, it isn't." (Will you answer a question frankly and honestly?) After a long pause, "Why, yes, I will." (Then, why did you answer the questions incorrectly before?) "Well, you know, if you put a man up among a lot of crazy people he is apt to get smart on the doctors." (And so you did it out of pure contrariness?) "Well, I had an idea that you were chasing a new man in on me, and I didn't think the questions amounted to anything."

The other two cases of dementia præcox which showed *Danebenreden* were examined a second time by another examiner and each, after tactful questioning, gave at last in almost identical words his reason for giving purposely incorrect answers, saying "the questions were foolish."

A summary of the analysis made of the three cases presenting Ganser's symptom leads the writer to the following conclusions: the symptom may be found in a variety of mental states, and might readily be put down as a symptom characteristic of this or that psychosis, but further and more thorough examination will probably reveal that the answer has been given, not because of an associational disorder, but for some simpler reason; for example, because the patient thinks that foolish questions deserve a foolish answer, as suggested by *Henneberg*, or thinking that the observer regards him as insane he will act in an insane manner. These answers are lazy; when the patient for one of various reasons desires to answer incorrectly, it is easier to give an answer more or less relevant to the question asked than to start a new thought process and reply from an entirely remote circle of ideas. It seems fair to say that in many cases too much importance has been attached to *Danebenreden* and that further analysis would show that it was not a necessarily significant symptom but a matter of suggestion, perversity, obstinacy, or carelessness. At least for the dementia præcox patient these conclusions probably hold good. It is possible that the symptoms may have another meaning with hystericals, but this seems improbable when we consider the notorious perversity of these patients. The desire to answer incorrectly combined with the wish to answer with greatest possi-

ble ease would seem to form a sufficient explanation for the larger part of the cases.

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LETTER FROM FRANCE.

In France everything is very much centralized, even science, so that usually a discovery is only accepted after it has been freely discussed in several scientific societies. Nevertheless, it seems that in psychiatry this does not hold to the same extent, evidently owing to the peculiar conditions existing here, namely, the dissemination of a small number of specialists in the various countries.

This year we find most interesting psychiatric subjects discussed in gatherings where such discussions are, as a rule, not looked for, namely: in the Academy of Medicine, in the Society of Surgery, and in the Obstetrical Society. However, before devoting our attention to these, it will be necessary to speak briefly of the Congress of Alienists and Neurologists at Pau and on the discussion which there took place upon the problem of dementia præcox. After having shown last year how the views of Kræpelin had spread in France, we will now show how these views have been received by this Congress.

The nosological value of dementia præcox.—At the meeting at which this was discussed, details, as well as the fundamental question of the problem, were considered; and, in contradistinction to what is usually found on such occasions, the debate went but little into the side tracts, but was kept chiefly to the question which may be thus formulated: Is the present conception of Kræpelin as given and defended by the referee, Dr. Deny, correct? To this question almost all of those who spoke gave a negative answer. Not that the syndromes of hebephrenia, catatonia, and dementia paranoides, as well as that of simple dementia were denied. These are facts of clinical observation, and their knowledge in France is by no means of recent date; they may be found in the works of Morel. Nor have these been forgotten. But, beyond giving a renewed description of these clinical facts, the German School has tried to formulate a conception of dementia præcox

which attempts nothing less than to include the greater part of all psychoses, and which, as one of the members expressed it, represents not an evolution, nor even a revolution, but a complete upheaval. This was rejected.

In the opinion of Dr. Régis it is not proven that the three states, that of catatonia, that of hebephrenia and that of dementia paranoides are related to such an extent that they represent merely varieties of the same disease. Dr. Masselon wished to separate for the present, at least, the deteriorating forms of amentia from dementia paranoides, and the deteriorations which occur in debiles on slight provocation, especially at puberty.

Dr. Vallon claimed that dementia præcox was not one disease, but that there are several conditions which would deserve such a name. Dr. Colin expressed his displeasure at the tendency to combine in one disease so many different states under the fallacious pretext that we are dealing with identical symptoms. And Professor Ballet declared that it did not seem to him proven that all types which have been thus united belonged to the same disease. Afterward Dr. Mecus offered a new conception which is also opposed to the unity of dementia præcox.

If we examine the conclusions of all these investigators, it is evident, as the president of the Congress, Professor Brissaud, said, that in this question each one had been guided by his own personal experience, and his own way of looking at such problems. The elder Dr. Parant finally attacked the whole conception of dementia præcox even more fundamentally, since he denied that the dementia was usually primary, but claimed that the active symptoms were not merely to be regarded as accessory manifestations, but as the essential primordial expression of the disease. In his opinion also, there does not exist a homogeneous group, but heterogeneous elements have been united, and the didactic descriptions do not tally with clinical observation.

Moreover, would not such an idea, which is purely hypothetical in analogy with general paralysis, take no account of the hereditary and constitutional nature of the cases included under the head of dementia præcox? Régis and Gilbert Ballet, from the standpoint of the clinic, and Klippel, from the standpoint of pathological anatomy, protested in this sense.

Is it, therefore, wise to claim that dementia præcox represents a clinical entity? No one has been able to establish a clear symptomatology, nor can the findings in pathological anatomy satisfy anyone. The French desire above all clearness: and hence we were justified in giving our approval to the opinions of Professor Brissaud who contended that at present we meet with too many unknown quantities to be able to decide definitely upon the problems of dementia præcox, and that these unknown quantities force us to an attitude of reserve.

On the nature of delirium tremens.—One of the most interesting psychiatric discussions of the year was one which has just taken place in the Surgical Society at the instigation of Dr. Picqué, a distinguished surgeon of the Paris hospitals, who is also a surgeon to the asylums of the Seine, and has, at St. Anne, one of the best surgical services in Europe. We have only too often reason to complain of the barriers which social and clinical necessities oppose to the mutual intercourse between hospitals for mental diseases and other medical institutions, not to be pleased over the happy initiative of a surgeon who discusses psychiatric matters before a surgical society a few weeks after he had been doing the same to an audience of obstetricians.[1]

In the communication of Dr. Picqué, which is entitled " Pathogenesis and treatment of delirium tremens," the generally accepted views on the subject are discussed. It is well known that according to Verneuil and his pupils, the chronic alcoholism produces in the organism a special predisposition to delirium, so that the slightest operation or traumatism is sufficient to cause a delirium to break out; this is what the surgeons have called traumatic or nervous delirium. To be sure, Verneuil has spoken of the importance of septic absorption, but he saw in this only an occasional, though necessary factor. Dr. Picqué modifies this conception, reversing the factors in the sense that he attributes to alcohol only a secondary rôle, and declares that the influence of the infection is by far the most important. He even goes so far as to claim that the infection is the sole source of the delirium which may arise in total abstainers, as well as in alcoholics. We shall

[1] Société d'Obstetrique de Paris, January, 1905, and Société de Chirurgie, May 3, 1905, *et seq.*

presently see what therapeutic consequences we may derive from this proposition.

Dr. Picqué claims that according to his studies of the question there does not exist any difference between the symptoms of the puerperal delirium and the septic surgical delirium, both of which besides resemble delirium tremens. We may say in this connection that a close relation between all toxic and infectious deliria has been well known to alienists, more especially through the work of Professor Régis. Nevertheless, we are pleased all the more if the study of the insane allows a surgeon to propagate these ideas among non-psychiatric readers. The puerperal cases, according to Picqué, present two degrees of the psychosis, namely: (1) A dream state, the "*délire onirique*" with painful hallucinations, especially of sight, from which the patient may be aroused momentarily, especially by forced questioning. (2) A more complete state of confusion. In these latter cases, who are rarely alcoholics, the septicæmia precedes the delirium and is the unmistakable cause. Now if one analyzes the observations of surgical septicæmia one finds very often the same course and the same clinical picture; and one is bound to arrive at the conclusion that alcoholism, though it be frequent, is nevertheless often a secondary cause, which plays an unmistakable, but not indispensable rôle; and this rôle, according to Picqué, is to be found in the fact that the alcoholism gives to the delirium a certain coloring, namely, the element of fear with its dangerous reactions of aggressiveness and defence, with suicide and homicide.

Certain objections may, of course, be raised against these ideas of Picqué, and Picqué himself guards against these objections. He is obliged to admit that there exist certain post-traumatic deliria without infection. He adduces in this connection another pathogenic element, namely, the mental degeneracy which predisposes to delirium, and which becomes the main etiological factor in place of the infection. The author does not deny the existence of an alcoholic delirium which may arise after traumatism, but he wishes to eliminate from the infectious delirium the too great share attributed to alcohol, and in truth he wishes to strike out the alcoholic delirium from nosology as it has dis-

appeared from the hospitals, together with infection at a time when, nevertheless, alcoholism was in the ascent.

This etiological part of Dr. Picqué's communication has raised a number of objections among his colleagues. Broca Lucas-Championnère and Regnier have stood up for the existence of alcoholic delirium, claiming that it exists in surgical cases with and without infection. In order to be just to Picqué it is necessary to add that he declined any desire to be as categorical as he was made out to be; he stated that he simply wished to deny the existence of a distinctive infectious delirium for which there was as little foundation as for the establishment of pneumonic delirium, which would be distinctive of pneumonia.

The treatment of delirium tremens.—There is however one point upon which his ideas have met with no opposition, but have, on the contrary, called forth the most flattering approbation; namely, his conclusions in regard to the therapeutic indications which he derives from his work. It is well known that at present the treatment in cases of delirium tremens, such as is used in the Paris hospitals, is simple. Aside from the preventive measures (intestinal antisepsis, drainage of abscesses) only one drug is used, namely, laudanum in doses of 60 drops in a litre of red wine, and if the attack is prolonged the patients are transferred to an asylum; a change which is, of course, attended with the usual loss of time and interruption in the treatment. Only Professor Quenu has for years practiced subcutaneous injections of artificial serum, to which is added strychnia in small doses.

The treatment of Dr. Picqué, differs entirely. In the first place he stops all alcohol regularly; a mode of procedure which has been well known to alienists and practiced by them with success. Secondly, since the infection is the prime cause, he uses the same treatment as in puerperal septicæmic deliria. This mode has given excellent results wherever he was able to apply it early enough; whereas when this was not possible the prognosis was much graver. Unfortunately, such a treatment clashes with the arrangements of our hospitals. It is certainly harmful to such patients to pass, at the height of their disease, out of the hands of the surgeon who declines to have anything to do with their mental condition, into the hands of an alienist who has no means of successfully treating their surgical ailments. The remedy in

this state of affairs would be simple enough. It would suffice to have a number of isolating rooms for delirious and agitated patients in general hospitals.[2]

Perhaps such an improvement will be made by the Board of Health of Paris in spite of the fact that this board is a slowly moving machine. At the Hôtel Dieu it is already realized so far as the delirious medical cases of Dr. Ballet are concerned, and likewise at Bordeaux, where the innovation is due to the initiative of Professor Régis. Moreover, the medical societies of the hospitals of Paris as well as the Congress of Alienists and Neurologists expressed their desire in this direction in 1901. But the new advance finds difficulties on the one hand in the administrative routine, on the other hand in the necessities of the individual safe-guard which has demanded special laws for the places where the insane are treated. Let us hope, nevertheless, that this progress will more and more spread for the benefit of the patients.

The treatment of general paralysis.—The problem of the relation between syphilis and general paralysis does not seem to cease occupying medical thought. This important question has passed through successive phases and the interest in it is so great that it is well worth while to state briefly its present situation.

Subsequent to the scientific battle over the question of etiology, those who adhered to the syphilitic origin of general paralysis (and they were in the majority) concluded that it was rational to apply the antisyphilitic treatment, especially since we had no better means of treating the disease. Experiments were made with tabes as well as with general paralysis, but, since the conclusions differed somewhat for the two diseases, we will confine ourselves to the results obtained in general paralysis. The most determined advocate of this treatment was Dr. Leredde. In several publications,[3] he emphasizes the danger of the term parasyphilis, and of the conclusions of Fournier, especially the latter's opinion regarding the inefficiency of anti-syphilitic treatment, since this may seriously interfere with its use; for Leredde claims that the various so-called para-syphilitic diseases, among them

[2] Régis, Les délirants des Hôpitaux. Presse médicale, September 12, 1903.

[3] Congrès de Médicine de Toulouse, April, 1902; Société de Dermatologie, June, 1903, etc.

general paralysis, are curable by mercurial treatment if the following two conditions are observed. First, the treatment must be applied early, and he claims that one has a right to speak of a cure if the disease be completely arrested, just as we speak of a cure when a gumma becomes cicatrized. Secondly, the treatment must be sufficiently energetic. He states that that which is important is the quantity of soluble mercury introduced and circulating in the organism in the unit of time. In order to give maximum doses he uses hypodermic injections either of calomel or of soluble salts in high doses.

At the same congress of Toulouse at which Leredde spoke, Professor Lemoine, the president of the congress, supported him. He stated that for years he had tried the various mercurial treatments without success until he had begun to use benzoate of mercury, with which he treated for a year and a half an early case of general paralysis with the result of bringing about a cure. Since then he had some similarly successful cases, while in others at least an amelioration took place. Well aware of the fact that a definite diagnosis in the beginning of general paralysis is very difficult, Lemoine affirmed to those who may doubt the diagnosis that there was no question in this regard. He admitted that he had more failures than successes with this treatment, but insisted that we should be pleased to possess a method of treatment which accomplishes that much in a disease like general paralysis. As to the mode of treatment, he has chosen the benzoate because, even in large doses, it rarely produces intoxication. 5 centigrams may be given during 40 days without serious consequences.[4]

On the same occasion also, Professor Cassaët reported some cases in which general paralysis was arrested by mercurial treatment, and even described two very interesting instances in which it seems not exaggerated to say that they were cured in spite of the advanced stage of the disease. Cassaët concludes that, although the mercurial treatment cannot completely heal the disease, if the lesions are so far advanced as to give rise to cortical destruction in places, it, nevertheless, is capable of arresting this terrible affection; and he is of the opinion that formerly the treatment had not been energetic enough.

[4] Revue Neurologique, 1902, No. 14.

In the discussion Professors Pitres and Gilbert Ballet, far from sharing in this enthusiasm, expressed considerable skepticism, admitting, however, that the negative results which they had thus far obtained may be due to the small doses of mercury which they had used; they spoke of their intention to make a trial with bigger ones. Everyone, however, agreed that the use of iodides was to be condemned since it was always followed by serious consequences.

Through these communications medical men became interested in these problems. Several articles appeared which confirmed the striking results reported at the Congress of Toulouse, among them may be mentioned that which Dr. L. Marchand read before the Medico-Psychological Society, October 27, 1902. Starting from the idea that in order to obtain the most direct influence upon the inflammatory lesions of the nervous system, the method of introducing the salt was important, he injected a solution of mercurial salts, together with iodide of potassium into the subarachnoid space by means of lumbar puncture. He met with no accidents, but found a certain amelioration in four out of five cases, after the second and third period of treatment. To be sure these improvements do not seem to have been very pronounced to judge from his descriptions. Then Dr. Devay[5] reported some observations which confirmed him in the opinion that general paralysis was of syphilitic origin. Among 42 cases treated he found improvement in 32. In a first group of three observations the somatic, but not the mental symptoms diminished; in a second group of five cases the somatic symptoms disappeared; whereas the dementia remained. Five cases of a third group showed marked improvement in the mental symptoms without any amelioration of the physical signs; while finally ten cases presented a complete disappearance of mental as well as physical symptoms, without relapse. His treatment consisted in the injection of calomel (0.1 per week), with iodides in large doses (from 14 to 20 grms. per day). Remissions, for one cannot speak of anything else but remissions, are therefore frequent with this treatment, and Devay concludes that the treatment in general paralysis should be the same as in syphilis.

[5] Lyon Médical, February, 1903.

These new ideas, which were published in medical journals and discussed in societies and before medical congresses, produced a considerable impression which was due partly to the reputation of their authors, and partly to the fact that they propagated their discoveries with considerable zeal. There were few places where these new therapeutic experiments were not tried, experiments the value of which would of course be very great if the good results reported could have been confirmed. Unfortunately this was not the case. The serious consequences which the administration of iodide of potassium produced were well known, and Professor Robin[6] had demonstrated that congestive attacks may follow, an opinion which has generally been admitted. But the treatment with mercury was also destined to see its day of defeat, namely, in the course of the French Congress of Medicine in Paris (October, 1904). Lannois and Balzar reported their results with injections of mercury. They claimed that, since certain syphilitic lesions only healed by cicatrix, even vigorous treatment could not give rise to a complete recovery in general paralysis; nevertheless, they advised such treatment against inflammatory exacerbations which often occur in the course of the disease. Upon this, Leredde again upheld his ideas on the ground that what he reported were positive facts which could not be overlooked, and he proposed at the same time a number of problems for experimental studies.

But above all Fournier opposed these ideas. He gave the results of his long experience, which were absolutely negative in the case of general paralysis, in spite of the use of large doses. Then Brissaud, while he admitted that with proper care there was no danger in giving to general paralytics even large doses of mercury (he gave as much as 0.13 centigr. per day), though he declared that it was necessary to stop when the resistance of the patient is reached, nevertheless was unable to record a single favorable result; and since the early diagnosis is difficult, he ventured to say that to him a cure of confirmed general paralysis was unknown, while to say that a cure was effected in an early case was not justified since the diagnosis was impossible. Therefore, it seemed that after this discussion the use of mercury in

[6] Société de Thérapeutique, February 11, 1903.

general paralysis was condemned, at least for the present, especially since with this treatment rapidly developing states of cachexia may be found, according to some neurologists, especially P. Marie.

In spite of this, the treatment of general paralysis again became the question of the day.

On the 28th February, 1905, Professor Fournier made a very important communication to the Academy of Medicine upon general paralysis *in syphilitics:* He claimed that while cerebral syphilis was of most frequent occurrence towards the third year, this syphilitic form of general paralysis was a late manifestation, unknown in the first two years, and developing more especially from the sixth to the tenth year, the greatest frequency being at about the tenth. He also claimed that it very rarely occurred in syphilitics who had been treated. Therefore, he concluded that there was at least room for a preventive treatment of general paralysis of the syphilitics, and that it was wise to modify the present modes for treating the candidates for general paralysis. He prescribes an energetic course during the first two years in order to break the disease. After that he gives the patient a rest for a year; again takes up the treatment for two years; this is followed by another rest, and finally towards the eighth year, a treatment as rigorous as the first is again resumed. Usually the treatment of two years suffices to produce an arrest of the disease, but the effects do not last; it is as if the drug had made a contract with the disease which requires to be renewed for fear of letting the important term pass by. This mode is also useful in those serious cases of syphilis which have a benign beginning and do not require any treatment at first, but manifest themselves, finally, by a regular thunder-clap.

Therefore, the only safe-guard against syphilitic general paralysis is a methodical, long-continued, mercurial treatment. Nevertheless, the neuropathic side must not be overlooked, and it is necessary to recommend certain hygienic measures to be followed, namely, care should be taken not to overdo in any way, to avoid sexual excesses, loss of sleep, alcoholic intoxication, and the inordinate use of tobacco; nor should hydrotherapy be omitted. This communication has provoked an important discussion in the academy. Professor Fournier was supported by those who adhered to the syphilitic origin of general paralysis, such as Pro-

fessor Raymond, who also lays much stress on heredity in that disease. He was opposed by Professor Joffroy and Lancereaux who did not agree that general paralysis had any definite relation to syphilis.

It is difficult to say how this question will develop in the future, nor is this the place to venture upon a discussion of the possibilities. It is interesting, however, to state that at the very time when it was thought that this whole problem was settled, the debate was re-opened, and re-opened by the very one who had shortly before given a decisive blow to the treatment then in vogue.

On crimes committed by insane patients in asylums.—The asylum physicians of France have been sadly touched by the grave accident with which Dr. Vallon, the chief physician of St. Anne in Paris, and well-known expert in legal medicine, has met. During one of his ward visits he has been the victim of an assault by one of his patients, a case of paranoia, who had already shot at his persecutors, and who was committed to St. Anne on the certificate of Dr. Vallon. This patient when he was unable to obtain his release swore that he would kill the chief of the service and premeditated the act for a long time. He stole a knife at the kitchen where he was employed, hid it carefully, and on the 4th of October of last year suddenly struck the doctor in the neck before he could be prevented from so doing. The instrument had a very dirty blade which entered for 1½ cm., as far as the spinal cord, only a short distance below the medulla oblongata. After a short lapse of consciousness a right hemiplegia, with hyperæsthesia of the same side, and anæsthesia of the opposite side, was found. According to Gilbert Ballet this was not due to hemisection of the cord, but to a slight involvement of Gowers' tract. The patient, who was cared for by Dr. Picqué, regained little by little all of his movements, yet, even to-day, months after the assault, he has not fully regained his health, as there still persists a certain weakness of the affected side. Nevertheless, he is very active, and, although he has not been able to resume his service at the hospital, he presides regularly at the Medico-Psychological Society, of which he has been made president for the year 1905. The grave assault committed upon Dr. Vallon is not the first crime committed in France by an insane person against a member

of an asylum staff. Dr. Hospital has given a collection of such cases in the *Annales Medico-Psychologiques* on the occasion of the historic death of von Gudden, the physician to the king of Bavaria, whom the latter drowned with himself. Without enumerating all the accidents to physicians in the different countries, among which America has its share, but confining ourselves to France, we recall the following cases since Pinel, who, though being the liberator of the insane, himself just escaped being the victim of such an act. Geoffroy, the physician to the asylum of Avignon, while stooping to examine the knee of an epileptic, was hit by the latter in the flank with a knife, from the effects of which he died shortly afterwards, in the year 1857. In 1897, Dufour, physician to the asylum of Grenoble, received two cuts on the head during his visit; he recovered. The act was premeditated. In 1881, Marchant, physician at Toulouse, admitted to his hospital an officer with delusions of persecution, who hid under his garments a revolver, and killed his physician a few days after entrance. During the subsequent year Bécoulet at Dôle was wounded in the face by a paranoiac by means of a sack filled with glass. Espian de Lamaëstre received a similar wound, also at the hand of a paranoiac.

Since the time of this summary of Dr. Hospital, the crimes committed by the insane in insane asylums have not stopped. At Mans a quiet patient who was allowed to work, struck Dr. Mordret twice with a knife in order to go before the court and obtain his release from the asylum. At Charenton Dr. Ritti received a violent stroke with the fist by a general paralytic who had intended to kill him. At Montpellier Professor Mairet was the victim of an attack by a patient who, armed with a pointed piece of wood, perforated his cheek. Dr. Toulouse in Villejuif, had a woman in his service with delusions of persecution, and hallucinations, who threw pepper in his eyes and struck him with a hammer. Fortunately, the injuries had no serious consequences. Dr. Charpentier at the Bicêtre was the victim of two attacks. The first was by an old patient in his wards who came to see him at his office, and fired a revolver at him, without, however, hitting him. The other by an alcoholic who had previously murdered his wife, and who, in order to revenge himself for a protracted period of restraint in the asylum, profited by the liberty he enjoyed in being allowed to

work, and tried to fracture the doctor's skull with a metal kilo weight. In Vaucluse Dr. Kéraval received an injury in the abdomen inflicted with a knife by an alcoholic epileptic; the injury, however, was only superficial, owing to the fortunate intervention of an attendant who warded off the blow. The man acted with premeditation. Finally, Dr. Devay at Lyons was stabbed in the abdomen by a paranoiac, who worked in the shops of the asylum. A severe hemorrhage and peritonitis followed, but he recovered after laparotomy.

In addition to these murders and attempts at murder which were committed upon physicians, there is a list, unfortunately still longer, of attempts upon the lives of inferior officers of the asylums; indeed we even have to add that patients themselves have been the victims of such acts. In our search, which is incomplete, we have found as many as seventeen grave assaults committed in the asylums, and under the most varied circumstances. Most often it was the case that the insane person finds himself alone with an attendant, with or without premeditation; and has time to kill him, or even to mutilate him; or the patient may have access to the attendant at night, owing to the fact that he sleeps in the same room, and may have time to strike him at his leisure. It is certainly rare that all precautions had been taken; it is also exceptional that the crimes were due to a sudden impulse, but most often there was a long preparation. No matter what was the form of psychosis from which the patient was suffering, almost all, paranoiacs, debiles, or even general paralytics, premeditated their act, found means of obtaining a weapon, by sharpening a blade, or making some sort of a dangerous instrument and finally executed their act after waiting for the proper moment.

These lamentable facts give rise to some reflections. After all, most of them could have been avoided, since the patients were able to take a long time in preparing their instruments. These acts are, moreover, almost always the deeds of chronic patients who are allowed to work and who are allowed considerable liberty, often without sufficient account having been taken of their delusions; they are patients for whose surveillance not only one person is responsible, but on the one hand the attendant who has charge of the ward, and on the other hand the man in charge of the workshops. Such an arrangement is bad, and it is one of the

points which makes difficult the arrangement found in different asylums of an administrative superintendent who is head of the shops, and a physician-in-chief who is head of the wards. Therefore, it is wise to keep a careful watch over these patients, especially when they have delusions. It was a case of this kind which was responsible for the dangerous accident to Dr. Vallon. Again, many accidents might have been avoided if attendants had not been left alone with patients; and, indeed, this should never happen. Certainly nurses should never sleep in the same room with patients, whatever phychosis these may have.

Another fact which the study of these cases brings home to us is, that, quite in contradistinction to the usual opinion, there are among these dangerous cases quite a number of general paralytics, e. g., the patient cited by Dr. Hospital, who complained of his detention at the asylum of Alençon, and who struck an attendant with a weapon prepared from a piece of iron, inflicting nine wounds; also the patient who tried to kill Dr. Ritti, and the one at Villejuif, who recently grasped an attendant by the throat; the latter died on the spot, evidently from inhibition. Dr. Pactet, in whose service the accident occurred, called the attention of the Medico-Psychological Society (March, 1904) to the fact that it was not justifiable to regard general paralytics as necessarily good-natured patients; and spoke in this connection of three murders committed by paralytics, which murders were due either to their inability to weigh the consequences of their acts, or to their marked irritability. After all it is well known that general paralytics are good-natured when things go their own way, but may become very violent when they think they are injured.

Dr. Vigouroux reported later, in July, 1904, similar observations to the same society. The first was a case of general paralysis, who, though he had marked delusions of grandeur, was able to convince his family of his sanity, and was also able to write a sensible letter to the editor of a newspaper, to get his comrades to sign petitions in order to protest against the treatment to which he was subjected, and made up a plot against the attendants and physicians, a plot which was about to become executed. The second case was also one of general paralysis, who premeditated his escape, but who was arrested at the moment when he had upon himself two knives, one with which to kill his wife, and the

other with which to kill himself. All these facts show that it may be dangerous to accept too lightly the usual opinion about these cases, and in general that vigilance is one of the first necessities to be observed by the physician in presence of his patients.

A. V. PARANT.

THE COMPLEXION OF THE JEWS.[1]

Dr. Maurice Fishberg, who has been studying the physical characters of the Jews for many years, has published the data as a memoir of the American Anthropological and Ethnological Societies (June, 1905). He agrees with the majority of anthropologists, if not all of them, that the present-day Jews do not represent a race of mankind at all, but are physicaly akin to the races among which they live. Eighty per cent of them live among the Alpine types of Central and Eastern Europe—a non-Aryan race originally from Asia. As all the Asiatic races are characterized by a broad head, dark complexion, straight hair and medium height, with the usual variations, it follows that the majority of the Jews are neither Aryan nor Semitic. By Aryan is meant the tall blond type with long head and wavy hair, and by Semite, the short brunettes with long head and wavy hair. The Aryan type, being confined to Northern Europe, has also been called the Baltic, Teutonic or Scandinavian, and its branches which have migrated have been called Celts, Slavs, Saxons, Romans, and Homeric Greeks.

The word Slav is used by Fishberg for the Asiatic or Alpine type which wandered into Europe in the millenniums just prior to the Christian era, and has learned to speak Slavic tongues. A few of these invaders, such as the Huns, still use Asiatic speech. The Semitic type is also called Mediterranean for it is mostly found around that sea. It is the link between the Negro and Aryan and indeed its southern branches are called negroid. The part of the world which can best be described as east of the Mediterranean sea, has been the theater of the conflicts of innum-

[1] Memoirs of the American Anthropological and Ethnological Societies. Materials for the Physical Anthropology of the Eastern European Jews. By Maurice Fishberg, Lancaster, Pa., 1905.

erable hordes of migrating Asiatics, Semites, and Aryans. The Asiatic types which have left modern descendants have here and there dropped their own speech and have learned Semitic tongues, so that they have long been called Semites though ethnically as far from that race as the Alpine is from the Aryan.

The Jewish religion has proselyted just as the Christian has, consequently a man's religion is no index at all as to his ethnic origin. In addition Jews, as well as Christians, have always married into the races among or near which they live. Hence anthropologists are almost unanimous in denying that there is any Jewish race at all, just as there is no Christian race. For these reasons they find that in North Africa, where nearly all the people are long-headed, the Jews are also long-headed, but in Eastern Europe where the heads are mostly broad or round, the Jews are of that type. Similarly the Jews are tall in places where the Gentiles are tall, and are short among the races of low stature, though they are almost invariably a little less in stature than the surrounding population, a phenomenon which is believed to be due to their poverty and the persecutions which have kept them confined to certain employments. The Jews are also city dwellers and that may be the main factor in causing a diminished stature, for city Gentile populations as a rule are shorter than the surrounding rural dwellers and it is no doubt due to the unnatural environment.

These two facts, that is, similarity of the Jews in head form and stature to the surrounding races, are sufficient to prove the theory that the Jews are derived in great part from the races where we find them. Head form persists throughout all changes in environment and it is certain that if the Jews were an ethnically pure race, we would not find such diversity among them in this one character. Yet when Fishberg took up the matter of pigmentation, he found that the Jews everywhere differed so markedly from the Gentile populations that he could find no relation between them whatever. Indeed it seemed that, at least as far as Eastern Europe is concerned, no matter what the indigenous population might present in the way of complexion, it did not appear to influence that of the Jews. He could therefore find no explanation for the origin of the blond types among them.

It is fairly certain that the ancient Jews were almost solidly

brunette although the Egyptians did picture types blonder than themselves. To be sure there were blond types nearby, such as the Amorites, who, like all mountaineers, were blonder and taller than the plains people, but there is no reason to believe that intermarriage with these has produced types which have persisted. Indeed the blond types are less numerous in the South than in the North. Again, the Amorites are believed to have been a long-headed race resembling the Aryan type, and this type is not represented among the Jews, for their blonds are apparently of shorter stature and broader headed than the Baltic man. Though it is quite evident that the Jews have not received a very marked increment from the Aryans, it is none the less true that they must have received some if the same rule applies to the Northern Jews as applies to all the others, and there are several anthropologists who have found tall Aryan types in increasing numbers the nearer to the Baltic the Jews were studied. Fishberg is inclined to believe that the tall Jews are apt to be brunette.

The blonds which are so easily accounted by racial intermixture, are really but a small percentage of the total number of Jews—not more than ten per cent anywhere, and as low as two per cent in Caucasia. They do not complicate the problem. The curious fact which Fishberg finds so puzzling, is that no matter what the Gentile complexion may be, the Jews show a remarkable sameness in being more brunette than their neighbors, and moreover the relative numbers of blonds, brunettes, and mixed types are so constant among the Jews that in a few places of Central Europe they seem to have a higher percentage of blonds than the Gentiles have. About 80 per cent of European Jews wherever found have dark hair and about 50 per cent dark eyes. Between these dark types and the few real blonds with blue eyes and blond hair, are the mixed types with gray eyes and brown hair.

The explanation of all these contradictory and puzzling facts as to pigmentation is probably to be found in Von Schmoedel's theory that pigments are evolved through natural selection to protect man from the dangerous short sun's rays—the blue, violet, and ultra violet. The writer's investigations have satisfied him that this theory is correct. The matter is too large to be entered into fully here but the details of the proof can be found in his

book on "The Effects of Tropical Light on White Men" (Rebman Co., 1123 Broadway, N. Y.). It is sufficient here to mention that the destructive effect of these rays to protoplasm, both animal and vegetable, is so great that life is not possible unless the cells are protected. Hence it is an invariable rule, that man has a pigmentary layer in his skin, whose opacity is in direct proportion to the intensity of the light to which he is exposed. It may make him black in the tropics or merely brown in the glare of the Arctic snow or that of the treeless plains, but he is blond only in the dark, rainy, cloudy northwest corner of Europe.

A map of mean annual cloudiness shows that the brunetteness of the people is also in direct proportion to the mean annual sunshine. In Southern Italy, with its cloudless skies of intense sunshine, blonds die out from the nervous and other diseases due to excessive light, so that the population is almost solidly brunette. This law applies also to Spain where the blonds are native only in the northern mountains, which furnish better conditions for blondness on account of their greater cloudiness. In the dark, cloudy, rainy country including Scandinavia and adjacent territories blonds do not suffer any inconvenience so that they flourish, but if they migrate far, extinction is the rule.

Now it is well known that in treeless, shadeless cities, the people are exposed to far more light than in the surrounding country, hence the blonds are the greatest sufferers and such families perish sooner or later. Their destruction is a well recognized phenomenon in American cities and has been going on in Europe for many centuries. It fully accounts for the fact that city dwellers are markedly more brunette than those in the surrounding rural districts. Since the Jews have been subjected to this selection for many centuries it is quite evident why the survivors should show such a high percentage of brunetteness.

This law does not imply that every blond who goes to a city must perish at once, or even in one or two generations. We are quite sure that the blond Homeric Greeks lasted many centuries before extinction finally resulted, but the brunette peasants survived eventually. Hence it is true that blond types introduced among the Jews of the city may last many generations, but that they tend to die out is shown by the present statistics. There is very little difference between the various cities of central and

eastern Europe as far as light is concerned, and as a consequence we should expect to find, as Fishberg reports, that the proportion of brunettes is practically the same in every city. Moreover, since the destruction of the blond types has no relation to the head shape, the survivors are found to be of every conceivable head form. Complexion in any part of the world has no relation to head shape whatever.

Fishberg's method of determining pigmentation can be severely criticized. The color of the hair is not a vital matter, though it is evident that black hair will protect the delicate cerebral cells far better than light hair. Yet light hair, if thick, is opaque enough for this purpose and suffices in all the tawny animals. Consequently types with brown or chestnut or even blond hair are able to survive if they have sufficient skin pigment. It is a fact that these northern blond types have but little skin pigment, but as we travel south we find that the light haired people have darker skins. I have made very careful examinations of light haired Italians, Spaniards, and others from southern Europe and have found that their skins are much more heavily pigmented than northern people with hair of the same color. It is not a result of tanning, because it affects the skin of the body which is never exposed to the sun. It is a congenital condition and is a matter to which practically no attention has been given by investigators.

We have piled up statistics as to hair color but they give us no idea of the opacity of the skin. The mistake is a very natural one because few people realize how opaque to actinic rays a swarthy skin really is. It is quite astonishing how such a skin protects one from sunburn and from X-ray burns. Dark brunettes apparently never suffer from X-ray unless it is applied inordinately. Hence Fishberg too has fallen into the old error and classes the Jews having yellowish or muddy skins as fair, whereas they are far from it. They are quite pigmented and perfectly suited to withstand the light of city streets, even though the hair be more or less blond. The statistics he gives are then evidently erroneous, for it is impossible to have 77 per cent of fair skins if there are 80 per cent or more with dark hair.

It is practically impossible to grade skin pigmentation except in a general way. A brunette may appear to be a very light per-

son when among swarthy Sardinians, but he would be considered very dark among Scandinavians. It is the contrast which counts. The brunettes in Scotland and England, who are called the "old black breed," are always "white men" when they go to India. Nevertheless it is possible to grade skins better than has been done. If the albino skin is zero as to pigmentation, and the black negro is ten, the blond Aryan would be one, and the swarthy Spaniard or Portuguese about four or five. The Jews whom Fishberg classes as fair would be about three or four in the scale or perfectly adjusted to the amount of light to which they are subjected, and they have evolved this by natural selection in all the cities irrespective of the complexions in the country people around them.

In the same way, the eye colors are very much misunderstood, for there is a vast difference between the blue Aryan eye and the grey eye. There is always some pigment in a blue eye and its amount gives the proper opacity to this curtain. Hence eyes commonly called blue are often very opaque. If this is taken into account there are very few light eyed Jews—far less than the thirty per cent reported. The blue eyes among the Spaniards and Italians are very dark and not at all like the Aryan blue. Similarly it will be found that the ancient Greek and Roman pictures rarely depict a brilliant blue eye, except as a northern type. By taking these corrections into account, we are quite justified in doubting that the Jews anywhere present a higher proportion of light types than the Gentile population, but that the reverse is the real fact in considering the total protection from light.

The red haired types among the Jews are just as inexplicable as among the Gentiles. There is not even a clew. Rufousness may be a variation of black or a variation of yellow, but as it is efficacious as a protection it will persist except in the tropics. It has existed among all races, blond and brunette, and we need not be surprised that it exists now as it did in the time of Esau.

This analysis of the complexion of the Jews therefore leaves but little doubt that they have evolved, through ordinary selection, a degree of pigmentation which is perfectly adjusted to the light of our cities where they now flourish and where they are bound to flourish for all time. They are so much more suited for city life than the Aryan immigrants that we are perfectly safe in predicting

that such types of brunettes will be the future city dwellers of America. Even now we can see that, except where they are too crowded and too poor, they are more vigorous and healthy than the Aryans, who become progressively feebler in every generation of city life, until they die out.

CHAS. E. WOODRUFF, *Major, Surgeon U. S. Army.*

Plattsburg, New York, September 2, 1905.

Obituary

DR. JOHN G. PARK.

John Gray Park, A. B., M. D., was born in Groton, Massachusetts, Jan. 3, 1838, the son of John G. and Maria (Thayer) Park. He graduated at Harvard University with the degree of A. B. in 1858. While pursuing the study of medicine at the Harvard Medical School in 1861 he became an interne at the Massachusetts General Hospital. In February, 1862, he was appointed an acting assistant surgeon in the U. S. Navy and served as such until November, 1865, when he was honorably discharged. He resumed his medical studies and received the degree of M. D. in 1866, soon afterwards opening an office in Worcester, Massachusetts. In 1871 he was appointed superintendent of the Worcester City Hospital then just opened. In October, 1872, he married Eliza B., daughter of Hon. A. F. Lawrence of Groton, and in the same month received an appointment as assistant superintendent of the Worcester Insane Hospital, where he remained until 1877, when he was transferred to the Worcester Insane Asylum, then converted into an institution for the chronic insane, and was made superintendent. Upon the retirement of Dr. B. D. Eastman, the superintendent of the Worcester Insane Hospital in 1879, he was appointed his successor and served the institution efficiently and continuously until his retirement in 1890. He spent the summer of 1881 in Europe and devoted special attention to English methods of caring for the insane. In his career as superintendent he had high ideals of professional duty and labored indefatigably to attain them. The circular observation wards which he built for suicidal patients attracted much attention and were regarded a new departure in the care of such patients. He also perfected the superb institution over which he had been placed in many ways and was ever a sagacious and prudent administrator. He was an excellent organizer and a good man of business, and under his management the Worcester Insane Hospital enjoyed a deserved prosperity. The failure of his health in 1890 led him to go to the Pacific Coast for a long vacation which unfortunately did not fully restore him, and his resignation followed. He then removed to his former home at

Groton, Massachusetts, where he continued to reside until his death.

In 1894 he was appointed by the Governor of Massachusetts one of the Commissioners to build the Medfield Insane Hospital and when the hospital was completed and opened he became one of the Board of Trustees, a position which he held during the remainder of his life. He was much interested in the work of this hospital and gave much time and thought to his public duties in connection with it.

His health gradually failed and he finally entered the Worcester City Hospital for treatment, where he died of cirrhosis of the liver, August 29, 1905. His wife died after a lingering and distressing illness several years ago. One son Lawrence Park, an architect of Boston, survives him.

Dr. Park was a man of fine physique and excellent presence. He was a genial companion, a steadfast friend, a public-spirited citizen and an upright man. His death will be keenly felt by many members of the Medico-Psychological Association.

STEPHEN LETT, M. D.

Dr. Stephen Lett, who died October 11, 1905, was a son of the Rev. Stephen Lett, LL. D., D D., of the county of Wicklow, Ireland, and later of Toronto and Collingwood. He was born at Callan, Kilkenny, Ireland, April 4, 1847, and was educated at Upper Canada College, Toronto. He became a member of the College of Physicians and Surgeons in 1870 and took his degrees at Toronto University.

For many years he filled the position of Assistant Medical Superintendent in London and Toronto Asylums, leaving Toronto January, 1884, to become Superintendent of the Homewood Sanatorium at Guelph.

In the fall of 1901 he developed general paresis which ended fatally in October of this year.

Dr. Lett was well known all through Canada as an alienist of many accomplishments and enjoyed a well deserved popularity. No doubt if he had remained in the Ontario service he would have become the head of one of the institutions, but as it was he did an excellent work by founding the first private asylum of any importance in the Province of Ontario. C. K. C.

Notes and Comment

CLOUDS AND HEALTH.—Major Charles E. Woodruff, Surgeon of the U. S. Army, whose name is familiar to the readers of the AMERICAN JOURNAL OF INSANITY by reason of his interesting and valuable contributions upon anthropology, has recently made the bold utterance that sunlight is not an unmixed blessing. Although sunlight is essential to life it may equally be destructive to life if the animal or vegetable tissue be exposed too long to it. In support of this view he cites the bactericidal effect of sunlight, the disappearance of blonds from the inhabitants of tropical or semi-tropical climates and the development of protective pigmentation among races where the sunlight is brightest, as for example the negro in the tropics and the Eskimo in cold regions where strong light is reflected from the snow. This pigmentation, he reasons, is absolutely necessary to enable the individual to adjust himself to his environment and individuals who do not develop it eventually die out as unsuited to this climate. He says:

"It so happens that the cloudiness of Europe, like that of Western America, increases toward the northwest. Consequently it is a rule that the complexions of the European races darken in proportion to the amount of sunshine. The blondest are in the northern, darkest, cloudiest and rainiest places. It stands to reason then that if a blond man migrates from this dark home to a light country, he is injured by the light and perishes in a few generations. This explains the disappearance of the blond Aryans who migrated in repeated waves to Southern Europe, and built up the ancient Greek and Roman civilizations.

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"This rule applies to America, and actual experience proves that the darker, rainier, and cooler a place is, that is, the more it resembles Southern Norway, the healthier are the blonds in that place. The original home of the blond is thus very far north, almost as far as Hudson's Bay, and our Southern States extend as far south as Nubia. No wonder then, that our South is becoming brunette, not by being sunburned, but because its blonds are gradually being killed off. No wonder, then, that these dark, rainy, cloudy, cool places of the Northwest are the most suitable for white men in the United States. It is a full and complete explanation of the exuberant health of the blonds of the northwest coast, with their brilliant complexions found nowhere else in the United States. All this is not proof that

we have any place as good as that in which blondness arose, but it is proof that the difference between our northwest coast and Southern Norway is not great enough to do very appreciable harm. It is a full explanation of that curious feeling of well being which comes on with cloudy weather, and of the stimulating and exhilarating effect of bright sunny days. If there are too many of these days, or the light is too strong, the stimulation becomes painful and exhausting. Disease results and the death rate rises.

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"The people of the northwest coast are not at all injured by their rains and clouds and lack of sunshine so many days of the year, but these conditions are the very ones, perhaps, which are giving this district an enviable reputation for health, comfort, and long living.

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"Instead of blaming the climate for its cloudiness, its people should be thankful that they are thus sheltered from the sun's rays which are so harmful in the rest of the United States. It required some centuries for the sunny skies of Greece to kill off the Homeric Aryans who invaded the peninsula about 1200 or 1500 B. C., and it will likewise take that length of time to accomplish the elimination of blonds in equally light parts of the central and southern parts of the United States. In the extreme northeast they will probably last as long as they do in equivalent climates of Central Europe, a matter of many centuries, but their eventual disappearance is as certain in one case as the other. Being so far in the future, the matter need not worry us in the least. The phenomenon will go on unnoticed as it has been going on unnoticed for 150 years in the southernmost of our States. It is simply the gradual elimination of blonds through greater susceptibility to disease in the lighter parts of the country and survival of the stronger and less injured brunettes. No one notices or even remembers the complexions of families which have disappeared, and are astonished to learn that they were blond as a rule. It is only after a long time that we discover the population to be more brunette; that is, it is descended from the darkest or fittest. We can confidently predict that the process will be exceedingly slow or even not occur at all in the dark parts of our northwest. The practical point for the present generation is to guard against a danger to health, and not unnecessarily expose ourselves to excessive amounts of light on the treeless, cloudless plains where the Indians were very dark, nor in any other part of the country, for it is all further south than the Scandinavian home of the blonds. Canada is better for white men than the United States, and the drift of migration is from Canada southward, but it is likely that the Puget Sound country and similar cool, rainy places resembling Southern Norway or cloudy Scotland, will be the permanent homes of blonds for all time.

"Let us end the sun worship which is now a mania with all learned people and acknowledge that too much of a good thing is always a bad thing."

If this be true it follows that the best remedy for neurasthenic conditions is to be found in a climate which does not furnish too much sunlight and consequently too much stimulation for the impaired nervous system. Such patients should not be sent to Colorado, New Mexico, or Southern California but rather to Oregon and Washington. It is hoped that after further study these views may be confirmed by other observers.

SECTION OF PSYCHOLOGICAL MEDICINE OF THE BRITISH MEDICAL ASSOCIATION.—The seventy-third annual meeting of the British Medical Association was held at Leicester, July 24-28, 1905. The section of Psychological Medicine was opened July 27, with an address by Dr. Urquhart on The Heredity of Insanity, following which Dr. A. T. Schofield read a paper on The Extension of Psychology in Medicine. The next day Dr. R. C. Stewart read a paper entitled Short Notes on Lunacy in Leicester, following which there was a discussion, opened by Dr. Hyslop, on Occupation and Environment as Causative Factors of Insanity. A paper by Dr. W. A. Potts on The Causes of Mental Defect in Children closed this day's session. On the twenty-eighth Dr. Robert Jones opened a discussion on Prognosis in Mental Diseases. A paper by Dr. L. Baugh on Confusional Insanity closed the meeting. The next meeting, in 1906, will be held at Toronto.

ANNUAL MEETING OF FRENCH ALIENISTS.—The fifteenth annual meeting of *Médecins aliénistes et neurologistes de France et des pays de langue française* was held at Rennes, August 1-8, 1905. It was opened with an address of welcome by M. Pinault, mayor of Rennes, to which Dr. Giraud, president of the congress, responded. A visit was then paid to the Palais de Justice. In the afternoon the principal address entitled *De l'Hypochondrie* was delivered by Pierre Roy. In the evening a reception was tendered the members of the congress and their wives by the city authorities.

The morning session of the second day was devoted to a number of papers, the chief discussion being on several papers upon *tics*, and on a paper by M. Granjux on *l'alienation mentale dans l'armée*. This question aroused such interest that it is to be continued at the next congress. In the afternoon an address

was made on *les névrites ascendantes* by M. Sicard. In the evening a banquet was held.

The third day was given over to an excursion to a neighboring asylum and to several other points of interest.

The morning session of the fourth day was occupied by twenty-two papers of considerable interest, and in the afternoon Dr. B. Pailhas made an address entitled *Balneation et hydrothérapie dans les maladies mentales,* after discussing which two papers were read and announcement was made that the next congress would be held August 1, 1906, at Lille, with addresses as follows: Psychiatry: *Etude cytologique, bacteriologique et experimentale du sang chez les aliénés,* by M. Dide. Neurology: Le cerveau senile, by H. Teri. Legal Medicine: *La responsabilité des hysteriques,* by M. Antheaume.

On the fifth day the congress visited the Asylum of Rennes where the morning session was held, seven papers being read. Lunch was served and a number of speeches were made. At the afternoon session sixteen papers were read.

No sessions were held on Sunday, and Monday, the last day of the congress, was given over to an excursion to *Asile de Pontorson.*

Death of Professor Laehr.—It is with great regret that we learn of the death of Prof. Heinrich Laehr on August seventeenth, in the eighty-sixth year of his age. Prof. Laehr has for a number of years been the chief editor of the Allgemeine Zeitschrift für Psychiatrie. He was also the founder and director of the Nervenheilanstalt Schweizerhof in Zehlendorf, near Berlin.

Rejection of Recruits with Tendency to Mental Affections.—The German authorities have recently issued more stringent regulations to prevent acceptance of new recruits with a tendency to mental affections, and to detect those already enrolled. In a number of garrisons permanent arrangements for post-graduate training in neurology and psychiatry are to be made. For several decades a course of psychiatry has been obligatory for the students in the military medical college in Berlin. The official notice also contains suggestions for detection of simulation.

MEETING OF SUPERINTENDENTS OF CANADIAN ASYLUMS.—At the invitation of Hon. W. J. Hanna, the Provincial Secretary, the Superintendents of the Canadian Asylums held a meeting in Toronto on September 20, for the purpose of discussing the needs of the provincial asylums. Papers were read by Dr. Campbell Meyers on the means of preventing insanity and on methods of care and treatment, and by Dr. W. N. Barnhardt on pathological work, but discussions upon the inspection of immigrants, the admission of the senile to asylums, pathological work in asylums, and the admission of insane to jails occupied the greater part of the time. This is the first meeting of the kind but is to be followed by others.

TENT TREATMENT FOR TUBERCULOUS INSANE IN ITALY.—Dr. Antonio Marro, physician-in-chief to the hospital for insane at Turin, has become greatly interested in the tent treatment of the tuberculous insane that has been so successfully carried out at the Manhattan State Hospital and intends introducing it in his own hospital. In order to influence public opinion he intends publishing the results which have already been reached and noted in the papers by Drs. Wright and Haviland, published in this JOURNAL. In all probability Dr. Marro would be glad to receive notes from others who have tried the tent treatment. His address is Via Cernaia, 40, Turin, Italy.

THE FUNCTIONAL CONCEPTIONS OF PATHOLOGY.—In conjunction with Dr. Cowles' insistence on the consideration of the functional aspect of mental disorders, it is of interest to note the growing realization of the importance of the physiological method in the study of diseases not only in psychiatry but also in so-called internal medicine. In the other addresses read before the Congress of Arts and Sciences, at St. Louis, last year, and in recent papers the value of the functional standpoint is magnified. In a pathological address at St. Louis, Hectoen, of Chicago, said: "That some of the followers of cellular pathology in the narrower, dogmatic sense, believed that the innermost secrets of disease could be reached by morphologic means, may now be regarded as an instance of the tendency man frequently shows to

approach his problems from the least accessible points."[1] From a pathological anatomist these are strong words, but not more strong than those by Dana in his address at the Congress:[2] "Clinical psychiatry is, in fact, only morbid psychology," and "Pathologic anatomy is a subject of more academic than practical interest to the psychiatrist. The burden of our work now should be away from morphology and more in physiologic lines." So long ago as 1892, Féré[3] insisted upon the physiological study of insanity: "Psychiatry ought to appropriate the physiological methods utilized by physicians. Departing from the metaphysical period of its evolution, it is in line to enter its positive experimental period. It is only in this way that it will obtain the same credit as other experimental sciences, and that it will cease to suffer from the scepticism of which it complains."

Meyer's article,[4] "A few Trends in Modern Psychiatry," emphasizes this standpoint: "There has been a growing confidence in the paramount importance of more accurate observation of the actual facts of insanity, the clinical evidence, and its analysis along the lines of the psychological experiment. . . ." "Kræpelin has been faithful to psychiatry as such and to its immediate correlate, experimental psychology, without feeling a desire to adorn his position with the easily obtained laurels in neuro-histology, and his faith has been amply rewarded." Ziehen is criticised because he has worked "with a constructive association-psychology, not with an essentially experimental attitude." Nissl's statement, "In almost all the functional psychoses it is possible to demonstrate anatomical findings in the cortex," is disposed of by Meyer as follows: "Yet, when we look for facts, it becomes plain enough that anatomy has so far furnished too few decisive facts, and that those hypotheses are the best which are based on evident and controllable facts in a field easily brought to a test of experience or experiment; and such experiments are more likely to be fruitful along functional lines than along simple anatomy, in most of the diseases with which we deal. What does an anatomical dogma

[1] Journ. Am. Med. Assn., XLIII, 1904, 1911-1917.
[2] American Medicine, IX, 1905, 97-103.
[3] La pathologie des émotions, p. 396.
[4] Psychological Bulletin, I, 1904, 217-240.

help?" A concluding sentence of Meyer's paper brings out most clearly his idea of the value of the functional aspect: "Psychology contributes essentially in the problem of symptomatic differentiation; and to some extent as the cardinal force of therapeutics."

It will not be amiss to quote Hoch's warning: "We must clearly appreciate that all these studies (i. e., studies of mental conditions in the insane and those following drug administration, etc.) are as yet in their infancy, and that no startling results can be expected so soon, yet no one familiar with the work can doubt that the road thus far covered is the right one."[5]

Finally, a quotation from an address delivered by one who has recently been called from his anatomical studies of the highest distinction to fill one of our most important chairs of medicine: "It is now clear to scientific medical men that a scientific therapy must be based ultimately upon physiology and that the cultivation and expansion of physiological science is essential if the development of a rational, physiological therapy is to be favored."[6]

S. I. F.

DELAY IN PUBLICATION OF OCTOBER NUMBER.—Some explanation is due our readers for the delay in the publication of this number of the JOURNAL.

It was caused by unexpected and apparently unavoidable delay in furnishing the editors the complete manuscript of one of the articles for the publication of which arrangements had been made for this number, and the complete copy of which was expected in time for such publication. In the meantime we are happy to say that the January number is nearly all in type and will, we anticipate, be issued promptly.

[5] Psychological Bulletin, I, 1904, p. 241.

[6] L. F. Barker: Method in Medicine, Bost. Med. and Surg. Journal, CLIII, 1905, 319-327.

Abstracts and Extracts

Le réflexe lumineux dans la paralysie générale. Par le Dr. Marandon de Montyel. Archives de Neurologie, Vol. XIX, p. 417, Juin, 1905.

The author gives the results of the examination of the pupillary reflex in 140 general paralytics from the onset of the disease until the death of the patient, the pupillary changes being closely followed. The conclusions which were reached were:

The pupils are abnormal in seventy-five per cent of the cases. In the great majority of cases both eyes are abnormal. Unilateral abnormality is very rare and is nearly three times as often transient as constant. More rarely yet the abnormalities are different in the two eyes and are never persistent. Considering the cases in the third stage the above results are verified and the law is proposed that some abnormality exists at some time or other in the course of the disease.

Exaggeration of the reflex was never observed as the sole change in the course of the disease—it was always preceded or followed by diminution. Abolition of the reflex is never established at the beginning of the disease but is always preceded by a diminution, the abnormality increasing from the first to the second stage and from the second to the third. Abnormal pupils exist in half of the cases from the beginning.

The unilateral abnormalities of the initial stage often persist to the intermediate, nevertheless they diminish in frequency and persistence with the progress of the disease to disappear completely at the third period. Unilateral abnormality is rarely met with, and in one-third of such cases, is but temporary. Still more rarely are the two irides abnormal in different ways, and then the difference is but temporary.

Finally it is noted that in the third period the eyes may rarely be normal, but more often the reflexes are diminished or abolished and are the same in the two eyes. C. R.

Some Remarks on the Nature and Classification of Insanity. By Theodore Diller, M. D. American Journal of the Medical Sciences, Vol. CXXX, p. 492, September, 1905.

The writer first points out that as mental symptoms are almost always accompanied by physical symptoms and since insanity is such a vague term and really means so very little, that it should not be used to designate a separate group of diseases, especially when a sharp distinction between sanity and insanity cannot be made in all cases showing mental symptoms.

It is thought that a more rational way would be to consider the physical and mental symptoms as units of one disease entity, since they are usually artificially divided. Short reference is also made here to the small amount of original investigation into the mental states in "so-called" physical disorders.

The idea outlined above is further elaborated by reference to special physical conditions with predominating mental symptoms, and it is also noted that Krafft-Ebing classes certain brain conditions as "physical diseases with psychic symptoms." The opinion is expressed that if the term "insanity" were abandoned and the points in the mental condition classed with the "physical" signs in the symptomatology of the condition a more determined effort would be made in the direction of etiology. Names which are in common use to express certain mental conditions might be used to specify a group of mental symptoms in connection with the physical condition. Finally, the establishment of psychopathic wards in general hospitals is earnestly advocated.

J. G. F.

La Pseudo-paralysie Générale Diabétique. Par JOSEPH INGEGNIEROS. Revue Neurologique, Vol. XIX, p. 709, 30 Juillet, 1905.

The author reviews the cases of general paralysis of diabetic origin which have been reported and gives the history of a case of his own. His conclusions are:

Diabetes produces both nervous and mental symptoms. All the somatic and psychic symptoms which constitute the syndrome of general paralysis have been singly observed and described as the result of diabetes.

A diabetic intoxication acting simultaneously on the different nervous centers, which can produce the symptoms of general paralysis, ought to manifest itself by that syndrome.

This diabetic general paralysis, by its clinical evolution, can manifest itself under different forms: 1. It can be accidental and disappear rapidly; 2. It can be fixed, but non-progressive, and curable by etiological treatment; 3. It can be progressive and incurable.

In the first instance one will have a "syndrome paralytique général diabétique accidentel"; in the second a "pseudo-paralysie générale diabétique"; in the third a "paralysie générale progressive diabétique."

The "pseudo-paralysie générale diabétique" is a clinical entity and should be added to the other forms of "pseudo-paralysie" (syphilitic, arthritic, alcoholic, and saturnine).

C. R.

Half-Yearly Summary

CALIFORNIA.—*Agnew State Hospital, Agnew.*—During the past year a cottage has been completed which accommodates 109 patients, the plumbing of the administration building and all of the old wards of the old building has been entirely replaced with new fixtures of the most sanitary pattern, a new oil gas plant for making gas from crude oil is giving considerable satisfaction, a vacuum heating plant is now being installed, and many other minor improvements have been made.

There is in contemplation for immediate construction new buildings better equipped for the treatment of the acute insane, an additional cottage, and a new kitchen.

Another assistant physician has been added to the staff and a woman physician is to be added at once.

—*Southern California State Hospital, Patton.*—The new central ward wing is expected to be ready for occupancy in November. This wing is a handsome building three stories high and cost $80,000. Furnishing will cost between $10,000 and $12,000 additional. In the basement there is a very complete laboratory for pathological and bacteriological investigation, and a room for the preparation and storage of gross pathological specimens. On the first floor are the offices of the superintendent, physicians, and business offices. On the second floor there are three suites of rooms for the assistant physicians, five large rooms for visitors, and the staff dining-room. On the third floor there is an operating room with anæsthetizing and convalescent rooms attached, all having tiled floors and walls and modern equipments. There are also on this floor a series of rooms which will accommodate about 60 quiet patients.

In October it is expected to open a detached cottage which will accommodate about 40 female patients of the convalescent class. The cost of this was about $20,000.

—*Mendocino State Hospital, Talmage.*—A tent colony for fifteen tuberculous patients has been in operation since November 10, 1904, and has been very successful. More recently tents to accommodate 45 cases of dementia have been put in operation and seem to be successful as the patients are more contented, their general health has improved, the untidy patients are more easily handled and many of them are brighter mentally than when on the ward. The cases treated include cases of dementia paralytica and of secondary dementia. The cost of these additions was about $3500, less than $60 per bed, while the cost of the ward buildings is from $500 to $800 per bed. During the wet season, the winter, there

were no colds nor cases of grip among the patients in the tents, but there were many cases on the wards and among the employes.

FLORIDA.—*Florida Hospital for the Insane, Chattahoochee.*—This is the only hospital for the treatment of insanity in the State and while primarily intended for the indigent under some circumstances pay patients are received. The number of the latter, however, forms but one per cent of the population which at the present time numbers nearly 800 patients.

There is now under construction a new hospital building which it is intended shall accommodate 225 colored male patients and their attendants. The steam-heating system is being thoroughly overhauled and repaired, the telephone system has been replaced by a more modern one, new and better sanitary appliances have been installed, and an artesian well is being bored. It is hoped that the supply of water from the latter will be sufficient to replace the creek water which has hitherto formed the basis of the water supply. Cistern water has been used for drinking purposes and it is hoped that this also can be discontinued. If the well supplies a sufficient quantity of water it is also proposed to build an ice and cold-storage plant.

The present staff, both executive and medical, was appointed last March at which time an assistant physician was appointed. It is hoped that a further increase may be made by the appointment of internes.

GEORGIA.—*Georgia State Sanitarium, Milledgeville.*—The laundry building has been enlarged by extending the building 40 feet, and by the addition of a drying room annex 24 by 71 feet. This gives an additional area of 4600 square feet of floor space which was much needed. The mechanical equipment has also been increased.

A brick wall 1756½ feet long and averaging 11 feet in height above ground has been built around the Whittle and Cabaniss buildings. The two wings of the latter building which remained unfinished at the time of the last report are now nearly completed, and the court-yards around both buildings have been graded.

The grounds around the Central Railroad station near the Green building have been graded and sodded.

Woven wire fencing has been placed in front of the Green and Cabaniss buildings as well as across the space between the fronts of the Whittle and Cabaniss buildings. The four front porches of the Green building have been enclosed with wire guards so that the patients may have access to them at all times.

Covered ways with brick floors have been built between the kitchen and the main dining-rooms, and the basement rooms in the old buildings under the ninth and eighteenth wards have been connected together by arches in the partition wall forming passage ways which enable the patients and nurses to go under cover to and from the kitchen and dining-rooms in wet weather.

A great deal of painting has been done and a number of minor improvements have been made.

ILLINOIS.—*Cook County Hospital for Insane, Dunning.*—The total number of patients at this institution is 1815, of whom 27 are quiet and helpless at the infirmary, the remainder being at the hospital for the insane. The annual cost per capita is $113.18, about 95 per cent of all patients being pauper cases. About 65 per cent are of foreign birth and 10 to 15 per cent are non-residents of the county. Alcoholism is directly responsible for over 20 per cent of all admissions.

During the past two years the following changes have taken place: Instead of four assistant physicians there are three senior physicians, each in charge of one of the following departments: 1. A hospital ward for insane consisting of 12 wards with a capacity for 300. 2. General wards for insane men. 3. General wards for insane women. There are three or four internes to assist the senior physicians, all appointments being made on civil service examinations. The congestion of patients has been relieved by building three new cottages accommodating 162, a pavilion building accommodating 140, by reconstructing a recently-built hospital for consumptives to accommodate 300, and by building a farm ward accommodating 50. A training school for nurses and attendants has been organized and put into operation, and with this the supervision of wards and patients has been made more effective, each ward being visited daily by a physician, superintendent of nurses, head nurse, and supervisor, seven or eight times, and at night at least three times. The number of attendants and nurses has also been increased from 125 to 160, and the various positions have been classified and are paid according to the skill required to fill them. The scale of wages for men and women alike is from $30 to $50 per month, aside from board, lodging, and laundry service. A pathological laboratory has been started, at present chief attention being paid to examination of blood, urine, stomach contents, etc. Regular daily staff meetings are held to discuss the features and treatment of all serious cases, and at a regular weekly meeting clinical cases are presented and studied. The entrance examination has been enlarged and systematized, and each patient's record is kept in a separate folder. A fire brigade has been organized, electric-alarm service installed, and the patients have been trained to leave their respective wards in case of a fire alarm. Facilities for the occupation and amusement of patients have been increased.

—*Illinois Northern Hospital for the Insane, Elgin.*—Among the improvements under construction or recently completed at this institution are five spiral fire escapes, a stand-pipe with pipe line to the river, a paint shop, two engines, and two 65 k. w. dynamos.

—*Illinois Asylum for the Incurable Insane, Peoria.*—Since the beginning of the year this hospital has maintained an average daily population of

1450, almost double that of the previous year. All gratings, bars, or obstruction of any kind has been removed from doors and windows and the ward doors are unlocked. The use of mechanical restraint has been abandoned and no hypnotics nor narcotics have been used for over a year.

A hospital accommodating seventy patients has been established and completely equipped. In this all of the nurses are women, whether on the male or female service, and are under a competent chief nurse who has had general hospital training.

The substitution of female for male attendants on the male wards has gone steadily forward until five hundred of the male patients are now cared for by female attendants. Only three wards are now in charge of male attendants and these will be replaced by women as soon as possible. At first only married women were chosen for duty on the male wards and no one was arbitrarily assigned, but volunteers have been so numerous that this rule is waived.

The color scheme of treatment has been adhered to throughout the ten cottages painted interiorly and the constant exposure to the blue and violet tones is being watched with interest.

The per capita cost of maintenance for the past year was $131.

—*Illinois Southern Hospital for the Insane, Anna.*—Fire on the afternoon of April 1, 1905, caused damage to this hospital amounting to $6000. The fire started in the power house and completely destroyed the roof, but by prompt work on the part of the employes it was prevented from spreading to the main buildings.

—*Illinois Western Hospital for the Insane, Watertown.*—Two improvements of especial importance have been made at this hospital. The first is the construction of two cottages for the isolation of tuberculous cases. About each side of these there are wide porches extending in all for a distance of 224 feet, sections of which will be screened off so that the patients may sleep out of doors. Between the two cottages there is a large house, the walls of which are made entirely of violet-colored glass. In this house it is proposed to liberate the fumes of the northern pine. A tent colony will also be provided in large yards which surround the cottages, there being space sufficient for six or eight tents in each.

The other improvement is the construction of an amusement hall, 100 by 300 feet, which is capable of seating 1200 people. All supporting work to the roof is by means of trusses so that there are no pillars or other obstructing objects. It is provided with four bowling alleys, billiard and pool tables, a swimming pool, and a platform 80 feet in width. This hall is intended to be used as a retreat for patients in rainy or cold weather, and entire wards may be entertained in it at one time. A schedule will be so arranged that the hall will be used on alternate days by the male and female patients, and after hours it will be used by the employes. It is not intended to abandon the older amusement hall which will be used for

lectures and other entertainments, but to use the new hall for band concerts, dances, basket ball, and the less formal amusements.

INDIANA.—*Southeastern Hospital for the Insane, Madison.*—The location of this new hospital has been made at this place. A tract of 393 acres, 346 feet above the Ohio River, has been accepted upon the following conditions: that good water be furnished in sufficient quantity, that the commission be given the privilege of selecting whatever portion of the land that it desires at a lower price than first asked, that the title be approved by the attorney-general, that streets leading to the hospital be improved, that the Pennsylvania Railroad construct switches to connect with the institution, and that the site shall be surrendered to the commission within a specified time.

IOWA.—*Cherokee State Hospital, Cherokee.*—The cottage for one hundred male patients which has been under construction for the past year is about ready for occupancy. This building is modern, both in construction and equipment, and is thoroughly fire-proof.

There are being constructed at the present time two soft-water cisterns, each with a capacity of 100,000 gallons, which are intended to supply the laundry and boilers only. Another deep well is being sunk which, with the two other wells already completed, will give the institution an ample supply of wholesome water for all purposes.

A great deal of grading has been done about the institution during the past six months and over 6000 feet of cement walk has been laid.

KANSAS.—*Parsons State Hospital for Epileptics, Parsons.*—The population of this hospital has continued to increase until it has now reached three hundred. It has been necessary to open an additional cottage within the past six months and another building will be opened during the winter or early spring. The capacity will then be four hundred.

The medical work has progressed in a very satisfactory manner. The medical staff has been recently increased by the appointment of a second assistant physician. A training school will be in operation during the winter and plans are now being made for the opening in October of schools for the patients. A fair working laboratory is now in operation.

Other improvements, either already under way or contemplated in the immediate future, are grading of lawns and planting of additional trees, the establishment of a dairy, and tiling a part of the farm and gardens.

—*Topeka State Hospital for the Insane, Topeka.*—There has recently been an outbreak of typhoid fever at this hospital, five employes and one patient being attacked. It is believed that the ice supply, which is from the Kansas River, is the source of the infection.

KENTUCKY.—*Western Kentucky Asylum for the Insane, Hopkinsville.*—During the present year two new wings have been added to this hospital,

consisting of eight wards, which increases the capacity to 1300. A new boiler house, two boilers, and a steel concrete chimney have also been completed and installed; the cost of same was $83,000. A new laundry building is now in course of construction, which will cost about $10,000.

LOUISIANA.—*Louisiana State Hospital for Insane, Alexandria.*—This institution is now nearly completed and will be ready for the reception of patients about November 1. It will accommodate approximately 500 patients.

—*Insane Asylum of the State of Louisiana, Jackson.*—The entire medical staff has recently changed, Dr. George A. B. Hays, the superintendent, becoming superintendent of the new hospital at Alexandria. On August 31 he was presented with a handsome silver loving cup by the employes of the institution. Upon the opening of the new hospital 200 patients will be transferred from this institution, reducing the population to 1250. At present there is a vacancy in the medical staff here.

MASSACHUSETTS.—*Foxborough State Hospital, Foxborough.*—The Massachusetts Hospital for Dipsomaniacs and Inebriates is now by legislative enactment the Foxborough State Hospital.

The field of work of the hospital has also been enlarged, and it now receives chronic insane men, transferred by the State Board of Insanity from the State hospitals. The two departments, that of the insane and inebriates, are kept entirely separate, each unit preserved intact.

The legislature appropriated $100,000 to erect new buildings and a heating, lighting, and power plant. Plans for the latter and one new building, to accommodate 100 chronic insane men, have been prepared and work will soon begin.

The number of patients at present is 201.

—*Massachusetts Hospital for Epileptics, Palmer.*—At this hospital a new building for one hundred male patients is nearly completed, making the total capacity of the institution six hundred. It is probable that a similar building for women will be undertaken soon. This completes the main group classification, and it is the purpose of the trustees in making further extensions to erect cottages similar to several now in use for family groups.

An addition to the staff has been made of one assistant, so that the total number on the medical staff is now five, the superintendent and four assistants.

Dr. John A. Furbish, a recent graduate of the Harvard Dental School, has served as dentist during part of the year, and a large amount of work has been done by him. Training school is also doing good work.

MICHIGAN.—*Upper Peninsula Hospital for the Insane, Newberry.*—Quite extensive improvements have been made during the past summer, and more are under way.

A new laundry building has been completed, additional laundry machinery is being installed and will soon be in operation. This will materially relieve the congestion which has been so marked in the old laundry building as a result of the rapid increase in population.

The inside painting of buildings has continued, and it is hoped to extend this work to include all buildings occupied by patients.

About four hundred feet of steam main from the boiler house through the tunnel to cottage mains has been installed to complete original plans, and a large amount of concrete walk has been constructed. The central heating plant is to be increased by the installation of two additional boilers of 166 horsepower each, and also by 115 feet of 10-inch steam main with appurtenances. Wood has been used for fuel since the hospital opened but coal is to be used hereafter, and the contract has been let for 3500 tons of coal, much of which has been already delivered.

Ground has been broken for, and construction will be pushed as rapidly as possible upon, a cottage and connecting cloister for men. This cottage will be 51 x 80 feet, two stories with basement, and will accommodate 50 patients.

—*Oak Grove Hospital, Flint.*—Plans have been prepared and the contract let for the building of an electric light and power house in connection with this hospital. It will be located at the rear of the central administration building. Improvements in the hydrotherapeutic equipment of the hospital are also in contemplation.

MISSOURI.—*State Hospital No. 1, Fulton.*—A new hospital building, accommodating about 100 patients, has been completed and is ready for use. For fire protection large plugs have been placed about the hospital buildings. The entire medical staff was changed in June.

—*State Hospital No. 2, St. Joseph.*—A new pavilion for women patients, called the Carey Building, was opened with appropriate ceremonies on September 6, 1905.

—*State Hospital No. 4, Farmington.*—There are under construction at this hospital at the present time a sewerage system, an additional dining hall, an addition to the laundry building, additional equipment to the power house, additional equipment to the electric power plant, an additional boiler room, and the furnishing of the infirmary. The following improvements are contemplated: an entertainment hall and employes' quarters, a water purifying plant, and a new cottage.

—*St. Louis Insane Asylum, St. Louis.*—There is in contemplation an immediate appropriation of $300,000 for the erection of two additions with connecting corridors, to relieve the present overcrowded condition of this hospital. Arrangements for a bond issue are now in progress, to be voted

upon by the people in November, for the relief of the city's elemosynary institutions, the aggregate amount of which will be at least $9,000,000, one million of which is to be spent in additional buildings for the care of the insane poor of this city.

—*Missouri Colony for Feeble-Minded and Epileptic, Marshall.*—The Missouri Colony for Feeble-Minded and Epileptic has 327 patients; 149 female, 152 male, and 26 on parole. The institution consists at present of Cottage A, day hall and two dormitories, 59 patients; Cottage B, day hall and two dormitories, 55 patients; Cottage C, day hall and two dormitories, 38 patients; Cottage D, day hall and two dormitories, 47 patients; Cottage E, day hall and two dormitories, 61 patients; Cottage F, day hall, two dormitories, 41 patients; Cottage G, basement, first, second, and third floors for school purposes; dining-room, to accommodate five hundred patients; kitchen; laundry; and power house. Contracts let: for addition to officers' cottage, $1500; new laundry, $6000; addition to power plant, $4000; workshop and machinery hall, $1000; completion of corridors, $3000; furnishing Cottages F and G, recently opened, $5000; addition to dairy barn, $1000; additional equipment of power plant, $1000; equipment of laundry, $1500; sewers, $1000; grading, walks, and driveways, $1000; repairs, $1000; building for school purposes, contract not let yet, $3400.

Dr. William L. Whittington has succeeded Dr. L. M. Thompson as superintendent.

The third year of school opened September 18. Number of teachers employed, four; all female; number of attendants, nurses, and employes, 40; value of plant, including grounds, buildings, and equipments, $500,000; total amount appropriated by last legislature, for buildings and support, including salaries of officers, repairs, improvements, and current expenses, $183,000. Charge for patients per capita, per annum, for maintenance, including school, $150.

NEW HAMPSHIRE.—*New Hampshire State Hospital, Concord.*—The legislature for 1905 appropriated $200,000 for erecting a hospital building, a store house building, an employes' cottage, and for the construction of iron fire-proof stairways in the place of the old wooden stairways which have existed since the foundation of the hospital. This work has been progressing. The most important feature of the work is the hospital building which is to be entirely detached from the main building though connected with the nurses' home by a subway. This structure is intended to serve as an admission building, all new cases being received here, examined, and located according to their requirements. A physician will reside in the building. There will also be provisions for the care and nursing of the feeble and sick demented insane as well as those suffering from the acute psychoses. It is expected that the building will be covered in by late fall and will be ready for occupation September, 1906.

NEW YORK.—*Binghamton State Hospital, Binghamton.*—The pavilion, known as Edgewood, for tuberculous patients recently erected on the hillside facing the south at this hospital is now occupied by one hundred patients. The building is advantageously situated with a protecting forest behind it on the north and to some extent on the west and east, and has a fine outlook over the valley of the Susquehanna River on the south. This pavilion has been constructed on the general lines laid down in Arthur Latham's prize essay and seems to be well adapted for the purpose it serves. Many windows admit the maximum amount of light, corners and angles are avoided as far as possible, and the furnishings throughout are calculated to avoid the collection of dust. The building has been occupied since June 1, 1905, and the patients are doing exceedingly well. The new brick residence for the superintendent has been completed and is now occupied. The apartments formerly occupied by him are now being converted to the use of patients with an addition for dining-room, lavatory, linen and bath rooms, and with the use of the old chapel for a dormitory, accommodations will be provided for about eighty patients. During the past summer a complete fire-alarm system has been installed, with eighteen stations for sending in alarms and a number of gongs in prominent locations where employes are likely to hear them. An automatic steam whistle is part of the system so that a general alarm is sounded as soon as a box is pulled. A complete hydrotherapeutic apparatus has recently been installed and is now in practical use. The erection of a new building for the chronic insane has been commenced. This building will be of brick and will provide accommodations for 440 patients. It will stand on high ground facing the south and will afford fine outlooks from all of its wards. An appropriation was made by the legislature last winter for the purchase of the "Park Farm," a property consisting of 180 acres adjoining the State hospital farm on the easterly side. This farm has been rented during the past four years and is regarded as a very desirable acquisition.

—*Brigham Hall, Canandaigua.*—On Wednesday, October 4, the managers of Brigham Hall celebrated the fiftieth anniversary of the founding of the institution.

A large number of the residents of Canandaigua and vicinity, and many others from a distance, including several members of the medical profession, assembled, in acceptance of an invitation from the authorities of the hospital, at Brigham Hall, where they were received by Dr. Burrell, the medical chief.

The principal feature of the formal exercises was an address by Dr. John B. Chapin, of the Pennsylvania Hospital for the Insane, Philadelphia, who was associated with the late Dr. George Cook in establishing, and for sometime in conducting, the institution.

Dr. Chapin's address is too long to reproduce in full, but the following extracts will, we are sure, prove of interest:

"During the summer of 1855, Dr. George Cook and his brother, Robert

Cook, reached the village of Canandaigua in the course of a tour of several villages in Western New York in search of a suitable site on which to locate and build a hospital for the care and treatment of the insane of the private class. . . . .

"What Canandaigua, the 'Chosen Ground,' or the 'Sleeping Beauty,' was to the Seneca Indian, so it has been the chosen ground of the white man who followed him, and here on this chosen spot and site you are assembled to-day to commemorate the fiftieth anniversary of the establishment of Brigham Hall. On this jubilee occasion it is my agreeable privilege, on behalf of the managers, to welcome you to this chosen spot; to thank you for the honor of your presence; to invite you to inspect the property and the arrangements for the comfortable care of our patients, and to present most briefly an epitome of some of the operations of this hospital. There have been the realization of expectations; the patient working out and completion of plans; professional results; something done to heal and to make more tolerable some of the infirmities incident to human existence, which we submit in the confident belief that they will receive your approval and furnish reasons for doing what has been accomplished during a period of fifty years. . . . .

"In the fall of 1854, Dr. George Cook returned to the State hospital at Utica after a sojourn of one year in England, Scotland, and France, spent in the observation of public and private asylums. He had been in the service of the Utica State Hospital under Dr. Brigham for a period of six years. The object of the journey abroad was to study the plans and administration of the foremost institutions of other lands. For a period of one year we were associated together at Utica, and there came to be formed between us strong personal relations such as come from close contact and the performance of similar duties, which were destined to be resumed afterwards in closer association, such as men form with mutual confidence in each other when they join their hopes and fortunes in an undertaking. To the majority here present probably Dr. Cook was unknown personally, but on an occasion like this there may be some who will unite to do honor to his memory, to recall in these days his uncompromising integrity, his devotion to his profession, and to hold him in remembrance for his fidelity to all civic and private duties as they came to him, and for the example of his Christian character. To those who did not know Dr. Cook personally, it may be stated that what you may observe to-day is due rather to his foresight and wise judgment than to that of any other person. . . . .

"In the year 1855, the State Hospital at Utica had been in operation twelve years and accommodated 444 patients received from the State at large. Bloomingdale Asylum (1821), a department of the New York Hospital, and Sanford Hall (1845), together having about two hundred and sixteen beds, constituted the entire hospital provision for the insane of the private class. . . . .

"No provision then existed for legalizing the private hospital care of the

insane, which, although lacking, was yet inadequate and much desired. During the summer of 1855, after conferences with the board of managers of the State Lunatic Asylum and their legal advisers, and with their approval and commendation, Dr. Cook, Robert D. Cook, and William G. Wayne formed an association, and purchased this site on which the building now used as a residence for officers and administrative purposes was standing, but then in an unfinished condition, surrounded by grounds in a very primitive state. The first patient was received October 3, 1855. There were then, as now, the elevated plateau overlooking the whole extent of the village; a view of Fort Hill toward the east; the gentle slope toward Canandaigua Lake and the Gorham hills beyond; the incomparable vista and setting of the lake itself limited on the extreme southwest by the Genundewah mountain, intimately associated with the legend of the great serpent and the origin of the Seneca Indians, known also as the Great Hill people. . . . .

"Recognizing the importance and even the necessity of receiving from the State Legislature such authority for the admission and detention of patients as it might be pleased to confer, an act of incorporation was prepared, approved, and introduced by the Hon. Mr. Boardman, of Tompkins County. It became a law in 1859. In the use of the word "hospital" in the charter, we have the first official recognition in this State or in many of the States, of the distinctly medical character of mental disorders, and the work to be carried on for the care and treatment of the insane as distinguished from places of detention only. Of the four persons, Dr. George Cook, Robert D. Cook, William G. Wayne, and Dr. John B. Chapin, who became associated under this act of incorporation, one still survives, but as reasonable permanence was one of the principal objects originally contemplated, the hospital has continued under the same judicious management by their successors that characterized the policy of the founders. To commemorate the name of Amariah Brigham, the first medical superintendent and organizer of the State Lunatic Asylum—the foremost alienist of his day—this hospital bears his name. . . . .

"The medical service and administration from 1855 to May, 1860, was performed by Dr. George Cook. From May, 1860, the medical duties and the administration were performed jointly by Dr. Cook and Dr. Chapin, until October, 1869, when Dr. Chapin removed to take medical charge of the Willard Asylum. After the untimely death of Dr. Cook in June, 1876, Dr. D. R. Burrell, formerly of Bloomingdale Asylum, was appointed resident physician, and continues in charge of the hospital, administering its affairs to our entire satisfaction. All who have been connected with Brigham Hall had experience and training in the care of the insane in large hospitals before their appointment here. . . . .

"From the beginning, October 3, 1855, to the 1st of October, 1905, there have been admitted to Brigham Hall 2097 patients. Of this number there have been discharged: Recovered, 548; improved, 692; unimproved, 425; died, 219; cases of alcoholism or the drug habit, 158. . . . .

"It was an experience of those engaged in State hospital work in the fifties, as well as earlier, to become familiar with the total lack of proper care and provision for the insane. The wretchedness of the poor and friendless persons confined in the county almshouses of that day was intensified by the squalor of their environments, and the lack of sympathy that characterized their care. It might seem strange and even impossible to some at this day, yet such is the fact, that not less than two hundred and fifty insane persons were confined with irons and chains in the poor-houses of New York State—a number greater than Pinel liberated from chains and irons in the hospitals of Paris in 1795—an event which marked the beginning of the modern humane system of treatment of the insane in France. . . . .

"It is part of the unwritten history of this subject and may be published here, that the managers of Brigham Hall made a proposition to the Boards of Supervisors of this judicial district to erect buildings for the care and treatment of all the insane in the counties comprising the district, without the aid of any public funds, subject to the approval of the Legislature, with the single provision that the insane of the district should be supported at the same weekly charge then made by the State Lunatic Asylum at Utica. This proposition was acted upon favorably, or received with marked favor, but was not pressed, and was finally abandoned when it was proposed that the State should control the management, although any State supervision or inspection would have been readily accepted. For the purposes of the proposed enlargement of our work, and to establish a colony, an option on a site of 250 acres of land near by was obtained. Undoubtedly to the advantage of all interests concerned, it has been well that the scheme ended, in the light of what has been accomplished in succeeding years, by the creation of a comprehensive system of State care of the insane. The study of plans and the details of organization of such a scheme to which your attention has been directed was nevertheless to bear some fruit, and was not wholly in vain. Although these plans and details had been considered and settled long before the law creating the Willard State Hospital was passed or even conceived, yet in the erection of that great plant they were in part reproduced. They have had a far-reaching influence upon plans of construction in this and other States, and rendered possible the success of the splendid State care system of your State and the total abandonment of the poor-house system of care that existed in former days. The organic act of the Willard State Hospital in the handwriting of Dr. Cook, with interlineations by the late Charles J. Folger, a Senator from this district, is a valued possession still in existence. . . . .

"Here on this 'chosen spot,' where we have been the recipients of the generous sympathy and co-operation of this community, we trust we have not wrought in vain. The work done here has not been for ourselves alone. We are, I trust, duly thankful that we have lived and participated even in an humble degree in the marvelous advances made in the care of the insane during the last half of the century that has just closed; for the

number who have been here restored to the possession of their reason; that the lives of others have been rendered more tolerable; for any relief of human suffering that has come through the instrumentality of this hospital. May the blessing of God continue to attend the undertaking during the years that remain."

—*Buffalo State Hospital, Buffalo.*—The new chapel, superintendent's residence, and staff residence, which have been building for the past year, are completed and are occupied. A home for 100 male nurses and employes is about completed and will soon be occupied.

—*Craig Colony for Epileptics, Sonyea.*—The census of the Craig Colony for Epileptics has reached 1050.

Bids were opened on September 5 last for six new cottages to accommodate 200 additional patients. There are now 71 buildings on the premises, 30 of which are occupied by patients.

Three additional medical internes have recently been employed. This gives a staff of 9 physicians for 1050 patients.

The new wing to the Peterson Hospital has been opened. It contains a specially constructed medical library, a room for medical records, and a complete plant for the water treatment of disease.

The last legislature gave the colony the right to make autopsies on the bodies of indigent patients dying at the colony. Following is a copy of this law: (The superintendent shall) "Have power, subject to the supervision and control of the board of managers, in case of the death of any patient at such institution who shall have been maintained therein wholly at public expense, to make or cause to be made at the said Craig Colony by a member or members of its medical staff an autopsy on the body of such patient, provided that such autopsy be made not later than twelve hours after the death of such patient and that it be confined exclusively to the brain and made in such manner as will cause the least possibly mutilation, and provided also that the said Craig Colony shall print conspicuously upon all application blanks used in admitting patients to the institution the fact that the officers of said colony have the above stated powers in relation to the making of autopsies.

"This act shall take effect immediately."

It is felt that the foregoing law will help in the elucidation of problems underlying the etiology of epilepsy.

—*Dannemora State Hospital, Dannemora.*—There is now in course of construction a new two-story building. This building is of red granite, is 114 feet long by 57 feet wide, and is a very desirable addition to the group of buildings now forming the institution. The lower floor of this building is to be used as a dining-room for patients and the upper floor as a chapel and amusement hall.

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well appointed and the hospital staff is now prepared to perform whatever surgical service is needed by the patients.

The hospital grounds have been improved to a great extent by grading and sodding.

—*Manhattan State Hospital, Ward's Island, New York City.*—By legislative action during the last session, Manhattan State Hospital, East, and Manhattan State Hospital, West, were consolidated after June 1, 1905. This act restored the board of managers and abolished the board of visitation, and otherwise brought about many changes in the medical and administrative departments. The vacancy for superintendent at the Manhattan State Hospital, East, had not been filled and the law provided that the superintendent of the Manhattan State Hospital, West, shall become the superintendent of the both departments after the consolidation.

Among the changes in the service may be mentioned the removal of nearly the entire staff of the men's division to the staff house of the women's division; removal of the drug store from the west side to the east division; and a re-arrangement of the offices of the west side so that all visitors to patients are first received there, given passes, and then proceed to the respective wards. All the wards of the men's division have been re-numbered in consecutive order following the numbering of the women's division.

The character of the class of men patients in certain wards has been changed. Transfers of hospital and decrepit patients from the main building to the east building have been made, resulting in greater convenience and more attractive environment for these patients. The reception service has been installed in a semi-detached brick building having two floors. This building is well ventilated and lighted on both sides. It has all the conveniences and is in a manner separate from those wards regarded as custodial.

Incident to these changes has been the removal of the office of the purchasing steward from 309 Broadway to Ward's Island, the purchasing steward now occupying the former residence of the superintendent and maintaining his office in the rear portion of this residence.

The medical work mentioned in the last summary has been carried on with unabating fidelity, and since the consolidation of the two hospitals, staff meetings have been continued every week day. A thorough, systematic analysis of every case is made soon after admission, and again before discharge. These analyses or reports are typewritten, filed with the history, and form a part of the record of the patient.

Massage has become a thoroughly established mode of treatment, and in cases of mental trouble with sluggish functional condition of the viscera and circulatory impairment shown in coldness of limbs and extremities, gratifying results are experienced.

The outdoor treatment for tuberculous patients and other classes continues to show the value of this method. The untidy class also shows

marked benefit, both mental and bodily, from this open-air life. The shop workers enjoy the pleasant relief of unlimited air and sound sleep after the day's work.

A pavilion to accommodate about thirty-five tuberculous patients is being erected on high ground at the men's division. This building is 20 x 70 feet and is similar to Camp D erected last summer. It is built of light timber and designed very much after the plans of the two frame pavilions at the women's division, previously reported. They are so located as to obtain the largest amount of sunshine throughout the year. These pavilions are well lighted in summer, the windows can be removed, thus affording ample protection both winter and summer, with the maximum amount of light and fresh air.

During the summer season the steamer "Wanderer" has taken out parties of patients three times a week, varying the trips between the New York Bay and Long Island Sound. It is needless to say that this is a popular outing with our patients. During the season also, patients have enjoyed salt-water bathing at the tidewater pond located on the grounds of the men's division at the south end of the island.

The industrial school of the women's division has continued to be very beneficial. Here indolent, sluggish, and apathetic patients have been taken with the view of teaching them to engage in light employment. Several cases of dementia præcox have apparently received an impetus toward improvement from employment at this school. A school similar to this is about being established at the men's division.

The addition to the staff house mentioned in the previous summary has been completed and is now occupied by the majority of the officers on the entire staff. The new solarium also referred to in last summary connected with ward 17, has proven to be very satisfactory in every way.

Following is a list of the work completed or begun since April 1, 1905:

Painting: Interior of the old portion of the staff house; interior of the purchasing steward's cottage; three wards in the east building, men's division; interior of the bakery; interior of the power house; exterior woodwork, gutters, etc., of Verplanck and New buildings.

A quantity of furniture has been purchased for the addition to the staff house and the purchasing steward's cottage.

A new tent 20 x 50 feet has been purchased for the use of the night attendants.

The south side of Camp C (frame building) has been removed and replaced by portable sections which can be taken out in summer and substituted by canvas the same as with Camp D.

The boilers in the main boiler house, men's division, have been reseated and the Parson blower system installed.

A system for conveying coal from the west dock to the main boiler house, men's division, has been installed, including tracks and four cars. The coal for both divisions is to be unloaded at the west dock in the future.

An estimate has been approved and work is under way for renovating the men attendants' home of the east division. This work includes new spray baths, repainting, repairing floors, and new cork carpets for the corridors.

Awnings have been provided for the fire escapes at the west end of wards 44 and 45, men's division, to provide shelter from the sun, so that these fire escapes can be used by the patients in these wards during summer afternoons.

Continuous baths have been allowed by the commission for wards 44 and 45, reception service, in the east building.

An extension of 50 feet of each track of the coal trestle has been allowed to provide for additional storage of coal at the west side.

An estimate has been approved for ventilators and additional cooking apparatus at kitchen No. 4, men's division, the latter including two new copper kettles and one new eighteen-foot range, replacing old kettles and ranges.

—*Middletown State Homeopathic Hospital, Middletown.*—Advertisements have been published for bids for the construction of a new four-story building to accommodate about five hundred chronic patients. The three lower floors will be given over to day rooms, dormitories, and dining-rooms for patients, and each ward will have twelve single rooms. The fourth floor will be finished into rooms for nurses, attendants, and other employes. The building will contain its own kitchens, but heat and light will be furnished from the central plant.

The clinical pavilion containing operating room and sterilizing plant, gynæcological room and X-ray and diagnosis equipment, is completed and open. Another improvement completed during the summer is a new 180-horsepower, horizontal tube boiler, with Roney automatic stoker.

It has been the policy of the hospital during the past two years to encourage the removal from the hospital of as many harmless chronic patients as possible and by this course, instead of the previous gradual rise in population it has been possible to reduce the number of patients by forty. Leading up to discharge, visits home have been encouraged, and for this purpose paroles have been freely granted with gratifying results. None of the patients so far recommended for parole has caused serious trouble at home.

Special appropriations of the last legislature for additions and improvements at Middletown are as follows: For laundry enlargement, $10,000; for workshop (new), $2500; for walks, $1000; for new furniture, $1000; for additional radiators, $1000; for fence, $500.

—*Willard State Hospital, Willard.*—The law establishing the new board of managers and abolishing the board of visitors went into effect June 1. Aside from this, there has been no material change in the organization or management of the hospital during the past half-year. The medical work continues as heretofore, each case admitted being carefully studied according to the plans suggested by Dr. Adolf Meyer of the Pathological Insti-

tute. Abstracts of all cases are presented at the staff meetings which are held several times each week, and these abstracts are filed and constitute a valuable addition to the medical records. The operating room equipment has been increased by the addition of a water sterilizer and some new instruments.

It is gratifying to note the great diminution in diphtheria cases. Since April 1 only one case has occurred. Aside from this and a few mild cases of measles which have occurred during the past two months, the hospital has been free from infectious disease.

Among the more important improvements completed or now under way, the following may be mentioned: The dining-rooms at Sunnycroft and the Maples have been so enlarged as to increase the seating capacity materially. These dining-rooms have always been too small for the number of patients, and the increased space will add greatly to the comfort of the patients as well as to the appearance of the rooms. Work is progressing at the Lodge (employes' home), the rooms of which are being wainscoted and fitted with steel ceilings. The exterior of this building has been painted. The porches of the detached buildings have been repaired, wherever necessary, and repainted. Many other outside structures have been painted during the summer. A new engine has been installed in the laundry. It is hoped that the renewing of the plumbing at the Pines will begin in the near future. The attic at Grandview will be remodeled to provide rooms for the employes who now lodge in the basement of that building. The appearance and comfort of the wards has been improved by the addition of considerable furniture. The old hotel has been taken as a home for the married employes. The building has been thoroughly renovated, remodeled, and painted, electric wiring has been installed and steam heat supplied from the pumping station. Twenty-five employes are lodged in this building at present, and as soon as the necessary furniture is received there will be accommodations for between forty and fifty. Steel ceilings have been placed on six wards at the Pines.

On September 7, 1905, 210 patients were transferred here from the King's County State Hospital.

North Carolina.—*State Hospital, Goldsboro.*—There is being erected at this hospital a brick building, three stories high, which will accommodate 96 female patients. The railroad spur referred to in the last summary has been completed.

—*State Hospital, Raleigh.*—The last legislature appropriated $40,000 for the purpose of erecting a wing to provide for insane women from the eastern district of this State. This building has been contracted for to be finished by November 1, 1906. It is to be 160 feet long by 48 feet wide, of four stories, and to contain 64 rooms. It will be heated and ventilated in the most approved manner, and will afford room for many insane women, for whom there is now no accommodation.

NORTH DAKOTA.—*State Hospital for the Insane of North Dakota, Jamestown.*—There will shortly be completed a hospital building within a short distance of the administration building which will contain accommodations for about 75 patients and the necessary nurses, examination rooms, a pharmacy, etc. About December 1 there will be completed a ward building to accommodate about 100 men of the working class. It will have a large general dining-room in the basement, a sitting room on the first floor, and a dormitory above with smaller rooms at the ends for the accommodation of employes or of patients who require single rooms. In the attic there will be three rooms for the male night nurses, as this building will be quieter during the day than the others of the group. Shower baths will be provided in the basement, and lavatories and bath rooms on each floor.

OHIO.—*Columbus State Hospital, Columbus.*—During the past summer this hospital has been very much overcrowded, there being an average of 1565 patients, while the capacity is but 1450.

Greer Cottage has been opened and has already proved of benefit in the treatment of more recent cases. A number of female nurses have been placed in charge of male wards and it is thought with improvement to the patients. The camp for tuberculous patients has again been in successful operation.

A large water tower has recently been erected with a capactiy of 100,000 gallons, and considerable work has been done in overhauling and modernizing the heating plant.

—*Cleveland State Hospital, Cleveland.*—The new infirmary building for which the legislature of 1903 appropriated $75,000 has been completed. It has a capacity of 200 beds, and twenty single rooms for the accommodation of nurses.

Numerous bids were received for the cold-storage plant, but as they were all in excess of the appropriation, which was $7500, all bids were rejected.

OREGON.—*Crystal Springs Sanitarium of Mt. Tabor, Portland.*—A new building, made necessary by the increased number of patients, has been completed. This is the largest of the nineteen which form the sanitarium, measuring 40 by 140 feet. It is intended in the near future to add two additional cottages to the institution.

PENNSYLVANIA.—*Friends Asylum for the Insane, Frankford.*—Improvements have been made to the fourth ward of the men's wing, consisting of the addition of thirteen bedrooms, two sitting rooms, two sun parlors and three bath rooms; also a fire-proof stairway to the second floor. The cost of these being about $25,000.

TEXAS.—*North Texas Hospital for the Insane, Terrell.*—Contracts have recently been made for two new buildings, and an addition to one of the

older ones, all of which work is to be completed in about nine months. These improvements will increase the accommodation for patients by 500, making the total capacity 1900. The training school for nurses opened for the third term on Monday, September 4, 1905, with a large attendance.

VIRGINIA.—*Western State Hospital, Staunton.*—Many improvements are going on at this hospital. The old brick walks around the buildings are being taken up, and granolithic walls substituted for them.

The new reservoir, with a capacity of nearly a million gallons of water, has been completed, and a well dug to the depth of 426 feet, from which a flow of water of about 165 gallons per minute has been secured by a pump test. It is expected to increase this flow by means of an air pump, and as soon as the necessary pumping apparatus is placed in position, a flow of 200 gallons per minute is looked for, solving the water problem for this hospital.

Contract has been made for a complete overhauling of the water-closets and lavatories throughout the entire institution. New sanitary hoppers and plumbing will be installed, with tile floors and wainscoting; porcelain bath-tubs and rain-bath system of bathing will be introduced, and everything placed in an up-to-date sanitary system of plumbing.

There is great demand for increased hospital accommodations in Virginia; all of the State hospitals being overcrowded. Sooner or later the State will be compelled to build another hospital in the Piedmont section of the State, or greatly increase the capacity of the existing hospitals.

WISCONSIN.—*Wisconsin State Hospital for the Insane, Mendota.*—The last legislature appropriated $40,000 for a congregate dining-room, general bath-rooms for each sex, an infirmary, two boilers, and for covering steam pipes. This sum has only partially been expended.

—*Milwaukee Hospital for Insane, Milwaukee.*—A pavilion for disturbed male cases has been erected in the rear of the north wing. The main driveway to the hospital has been improved with a combination curb and gutter, a concrete walk has been made from the superintendent's residence to the street railway station, and a macadamized road for heavy teaming has been constructed in the rear of the hospital. The old carpenter shop has been converted into a sewing department. Steel ceilings have been placed in the upper and lower general dining-rooms, supervisors' offices, drug store, wards, one both north and south, in the ice plant, and the new sewing department. The kitchen has been supplied with new urns and kettles, a range, and roasting oven. Two concrete silos have been built adjoining the barn, each having a capacity of 150 tons of ensilage.

MARITIME PROVINCES.—*Northern Hospital for the Insane, Winnebago.*—The water for this institution, other than that for drinking and cooking purposes, is derived from Lake Winnebago. This water is very dirty and

full of weeds, making it unfit for laundry and bathing purposes. The legislature appropriated money for the purpose of constructing a filter system and this has been installed at a cost of $1500. It is giving perfect satisfaction. The coal shed has been extended and new pumps and boilers have been installed.

ONTARIO.—*Homewood Sanitarium, Guelph.*—The cornerstone of a new building was laid with appropriate ceremonies on Thursday, September 21, 1905. The cost of this building will be $100,000 and it will accommodate 100 patients.

Appointments, Resignations, Etc.

ALLEN, DR. F. E., appointed Assistant Physician at Mendocino State Hospital at Talmage, Cal., May 6, 1905.

ANDERSON, DR. WM. H., appointed Superintendent of Eastern Washington Hospital for the Insane at Medical Lake, Washington, September 1, 1905.

ATWOOD, DR. CHARLES E., formerly Assistant Physician at Bloomingdale, White Plains, N. Y., resigned July 1, 1905, after thirteen years of service. After a period of study abroad he will enter into private practice in New York City.

AUSTIN, DR. MARY L., appointed Assistant Physician at Ohio Hospital for Epileptics at Gallipolis, Ohio.

BAILEY, DR. ALEXANDER, formerly Second Assistant Physician at Eastern Kentucky Asylum for the Insane, Lexington, Ky., appointed First Assistant Physician at Western Kentucky Asylum for the Insane at Hopkinsville, Ky.

BAKER, DR. AMOS T., appointed Second Assistant Physician at Dannemora State Hospital at Dannemora, New York, January 1, 1905.

BINGHAM, DR. HARRY V., appointed Medical Interne at Middletown State Homeopathic Hospital at Middletown, New York, July 1, 1905.

BRADFIELD, DR. J. W., formerly Third Assistant Physician at State Lunatic Asylum at Austin, Texas, promoted to be Second Assistant Physician.

BROOKS, DR. PAUL B., formerly House Surgeon at Bellevue Hospital at New York, N. Y., appointed Junior Assistant Physician at Buffalo State Hospital at Buffalo, N. Y., July 19, 1905.

CAREY, DR. HENRY, formerly Interne at Wesley Hospital, appointed Assistant Physician at Michigan State Hospital at Kalamazoo, Mich.

CHAPIN, DR. S. W., appointed Clinical Assistant at Manhattan State Hospital at Ward's Island, New York City, August 28, 1905.

CLARK, DR. DANIEL, formerly Medical Superintendent of Toronto Asylum at Toronto, Ontario, resigned.

CLARKE, DR. C. K., formerly Medical Superintendent of Rockwood Hospital at Kingston, Ontario, transferred to Toronto Asylum at Toronto, Ontario.

CLAYTON, DR. MARY, appointed Woman Physician at Binghamton State Hospital at Binghamton, New York.

CONRAD, DR. CHAS. E., appointed Medical Interne at Manhattan State Hospital at Ward's Island, New York City, August 1, 1905.

CUSHMAN, DR. R. A., formerly Assistant Physician at Mendocino State Hospital at Talmage, Cal., promoted to be First Assistant Physician, May 6, 1905.

DOUGLAS, DR. SUMNER E., formerly Medical Interne at Manhattan State Hospital at Ward's Island, New York City, resigned August 10, 1905.

DOWNER, DR. F. J., formerly Assistant Physician at Upper Peninsula Hospital for the Insane at Newberry, Mich., died suddenly from organic heart disease February 18, 1905, at the close of a lecture to the training class.

EASTLAND, DR. JAMES H., appointed Fourth Assistant Physician at State Lunatic Asylum at Austin, Texas.

ELSTER, DR. L. A., formerly First Assistant Physician at Mendocino State Hospital at Talmage, Cal., resigned May 6, 1905.

EVANS, DR. EDWIN E., appointed Assistant Physician at Hospital for Insane, No. 1, at Fulton, Miss.

EVERETT, DR. EDWARD A., formerly Second Assistant Physician at Middletown State Homeopathic Hospital at Middletown, New York, resigned September 15, 1905, to conduct a private sanitarium at Elmira, New York.

FISHER, DR. ALBERT M., appointed Assistant Physician at State Hospital for the Insane of North Dakota at Jamestown, N. D., April 12, 1905.

FITZGERALD, DR. JOHN G., formerly Medical Interne at Buffalo State Hospital at Buffalo, N. Y., resigned September 1, 1905, and appointed Clinical Assistant at Sheppard & Enoch Pratt Hospital at Towson, Md., September 15, 1905.

FULBRIGHT, DR. WILLIAM, formerly Third Assistant Physician at North Texas Hospital for the Insane at Terrell, Texas, resigned to enter private practice.

GRAVES, DR. MARVIN L., formerly Superintendent of Southwestern Insane Asylum at San Antonio, Texas, resigned.

GUEST, DR. ADOLPHUS W., formerly Assistant Physician at State Hospital for the Insane of North Dakota, Jamestown, N. D., resigned to re-enter private practice.

HARRISON, DR. J. FRANK, appointed Assistant Physician at Hospital for Insane No. 1, at Fulton, Miss.

HASSELTINE, DR. HERMAN E., formerly Medical Interne at Manhattan State Hospital at Ward's Island, New York City, resigned August 1, 1905.

HAYS, DR. GEORGE A. B., formerly Superintendent at Insane Asylum of the State of Louisiana at Jackson, La., appointed to be Superintendent at Louisiana State Hospital for Insane at Alexandria, La., September 1, 1905.

HICKEY, DR. CHARLES E., appointed Medical Superintendent of Cobourg Asylum at Cobourg, Ontario.

HOCH, DR. AUGUST, formerly Assistant Physician and Pathologist at the McLean Hospital at Waverley, Mass., appointed First Assistant Physician and Special Clinician at Bloomingdale at White Plains, N. Y.

HOWELLS, DR. W. J., formerly Superintendent of the Eastern Washington Hospital for the Insane at Medical Lake, Washington, resigned September 1, 1905.

HULL, DR. ANNA M., appointed Medical Interne at Middletown State Homeopathic State Hospital at Middletown, New York, February 15, 1905, and resigned July 15, 1905.

HURLBUT, DR. LEMUEL R., appointed Medical Interne at Binghamton State Hospital at Binghamton, New York.

KAFFIE, DR. LEO, appointed Assistant Physician at Insane Asylum of the State of Louisiana at Jackson, La.

KIRK, DR. L. H., formerly Second Assistant Physician at State Lunatic Asylum at Austin, Texas, promoted to be First Assistant Physician.

KUHN, DR. WILLIAM F., appointed Superintendent at State Hospital, No. 4, at Farmington, Mo.

LASSITER, DR. W., formerly Assistant Physician at Insane Asylum of the State of Louisiana at Jackson, La., appointed Assistant Physician at Louisiana State Hospital for Insane at Alexandria, La., September 1, 1905.

LEWIS, DR. W. C., appointed Assistant Physician at Hospital for Insane, No. 1, at Fulton, Miss.

LOLER, DR. WILLIAM J., formerly Assistant Physician at St. Louis Insane Asylum at St. Louis, Mo., resigned May 15, 1905.

MCALPINE, DR. K. K., appointed Assistant Physician at St. Louis Insane Asylum at St. Louis, Mo., September 4, 1905.

MCCLISH, DR. C. L., appointed Assistant Physician at Agnew State Hospital at Agnew, Cal.

MCKINNIS, DR. C., of Marion, appointed Interne at Columbus State Hospital at Columbus, O.

MCNICHOLL, DR. E. T., formerly Medical Superintendent of Cobourg Asylum at Cobourg, Ontario, retired.

MACDONALD, DR. ROBERT S., appointed Medical Interne at Dannemora State Hospital at Dannemora, New York.

MACKINTOSH, DR. J. A., appointed Pathologist at Mt. Pleasant State Hospital at Mt. Pleasant, Iowa.

MAHONEY, DR. THOMAS, appointed Clinical Assistant at Manhattan State Hospital at Ward's Island, New York City, July 1, 1905, and resigned August 26, 1905.

MAXWELL, DR. THOMAS O., formerly First Assistant Physician at State Lunatic Asylum at Austin, Texas, appointed Superintendent of Southwestern Insane Asylum at San Antonio, Texas.

MERENESS, DR. HARRY E., JR., formerly Assistant Physician at Manhattan State Hospital at Ward's Island, New York City, resigned August 11, 1905.

MERRITT, DR. WALTER, appointed Third Assistant Physician at State Insane Hospital at Jackson, Miss.

MILTIMERE, DR. EDWARD, appointed Clinical Assistant at Manhattan State Hospital at Ward's Island, New York City, May 15, 1905, and promoted to be Medical Interne, August 1, 1905.

MULLIN, DR. E. W., appointed Assistant Physician at Upper Peninsula Hospital for the Insane at Newberry, Mich.

NORTH, DR. CHARLES H., formerly First Assistant Physician at Dannemora State Hospital at Dannemora, New York, promoted to be Medical Superintendent, December 1, 1904.

O'MALLEY, DR. MARY, formerly Woman Physician at Binghamton State Hospital at Binghamton, New York, resigned, and appointed Woman Physician at Government Hospital for the Insane at Washington, D. C., August 1, 1905.

OHLMACHER, DR. ALBERT P., formerly Superintendent of Ohio Hospital for Epileptics at Gallipolis, Ohio, resigned.

OVERTON, DR. JOHN, appointed Clinical Assistant at Manhattan State Hospital at Ward's Island, New York City, June 12, 1905, and resigned June 24, 1905.

PAINTER, DR. A. M., formerly Assistant Physician at St. Louis Insane Asylum at St. Louis, Mo., resigned September 1, 1905.

PANNELL, DR. WALTER L., formerly Medical Interne at Craig Colony, Sonyea, N. Y., transferred to Buffalo State Hospital at Buffalo, N. Y., September 1, 1905.

PARKINSON, DR. JAMES M., formerly Junior Physician at Manhattan State Hospital at Ward's Island, New York City, resigned April 30, 1905.

PIERSON, DR. CLARENCE, appointed Superintendent at Insane Asylum of the State of Louisiana at Jackson, La., September 1, 1905.

POFF, DR. C. M., formerly Fourth Assistant Physician at North Texas Hospital for the Insane at Terrell, Texas, promoted to be Third Assistant Physician.

POMEROY, DR. JOHN L., appointed Clinical Assistant at Manhattan State Hospital at Ward's Island, New York City, June 1, 1905, and promoted to be Medical Interne, August 1, 1905.

POPE, DR. F. W., appointed Assistant Physician at Northern Hospital for Insane at Winnebago, Wis., February 23, 1904.

RICHARDS, DR. J. S., appointed Clinical Assistant at Manhattan State Hospital at Ward's Island, New York City, August 24, 1905.

RICKETTS, DR. HENRY E., appointed Clinical Assistant at Manhattan State Hospital at Ward's Island, New York City, June 12, 1905, and promoted to be Medical Interne, August 1, 1905.

RICKSHER, DR. CHARLES, appointed Clinical Assistant at Sheppard & Enoch Pratt Hospital at Towson, Md., June 5, 1905.

RYAN, DR. EDWARD, appointed Superintendent of Rockwood Hospital at Kingston, Ontario.

SMITH, DR. JAMES W., formerly Superintendent of Hospital for Insane, No. 1, at Fulton, Miss., resigned.

SMITH, DR. LEROY J., appointed Junior Physician at Manhattan State Hospital at Ward's Island, New York City, June 9, 1905, and resigned August 15, 1905.

THOMAS, DR. WILLIAM, appointed Fourth Assistant Physician at North Texas Hospital for the Insane at Terrell, Texas.

THOMPSON, DR. L. M., formerly Superintendent of the Missouri Colony for Feebleminded and Epileptic at Marshall, Mo., retired June 1, 1905.

THOMPSON, DR. NELSON W., appointed Clinical Assistant at Middletown State Homeopathic Hospital at Middletown, New York, August 12, 1905.

TIMMONS, DR. ROSE E., appointed Assistant Physician at Toledo State Hospital at Toledo, Ohio.

UNTERBERG, DR. H., formerly Assistant Superintendent at St. Louis Insane Asylum at St. Louis, Mo., appointed Psychiatrist and Assistant Superintendent at State Hospital, No. 3, at Nevada, Mo.

VERNON, DR. FRANK S., appointed First Assistant Physician at State Hospital, No. 4, at Farmington, Mo.

WEIGAND, DR. FRANK J., appointed Junior Assistant Physician at Dannemora State Hospital at Dannemora, New York, February 1, 1905.

WHELPLEY, DR. F. L., formerly Assistant Physician at St. Louis Insane Asylum at St. Louis, Mo., promoted to be Assistant Superintendent.

WHITTINGTON, DR. WILLIAM L., appointed Superintendent of Missouri Colony for Feebleminded and Epileptic at Marshall, Mo., June 1, 1905.

WILHITE, DR. J. T., formerly Fourth Assistant Physician at State Lunatic Asylum at Austin, Texas, promoted to be Third Assistant Physician.

WILHITE, DR. O. C., formerly First Assistant Physician at Cherokee State Hospital at Cherokee, Iowa, resigned September 1, 1905, to become Superintendent of the new State Hospital for Inebriates soon to be opened at Knoxville, Iowa.

WILLIAMS, DR. PORTER E., appointed Superintendent of Hospital for Insane, No. 1, at Fulton, Miss.

WILSON, DR. JOHN R., appointed Clinical Assistant at Manhattan State Hospital at Ward's Island, New York City, August 25, 1905.

WOOLLEY, DR. HERBERT C., formerly Medical Interne at Willard State Hospital at Willard, N. Y., resigned October 1, 1905.

Pamphlets Received

Bulletin of the University of Texas, No. 63, Medical Series No. 2. The Care of the Insane. Dr. M. L. Graves.

Dyspepsia Considered as a Brain Disease. A Historical Contribution to the Neuropathic Side of this Subject. Charles H. Hughes, M. D. Reprinted from the Alienist and Neurologist, August, 1905.

Annual Report of the Essex County Hospitals for the Insane, Newark, N. J., for the year ending April 30, 1905.

Movimiento de la Casa de Orates de Santiago, Chili, en el ano 1904.

Memorias de los Medicos de la Casa de Orates de Santiago, Chili, correspondientes al ano 1904.

The Physician and the Sunday Question. Dr. George Richter. Reprint from The Regular Medical Visitor, August 15, 1905.